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Original Communications.

THE VALUE OF ERGOT IN OBSTETRICS —A SYMPOSIUM.

In replying to the series of questions which are given below a number of prominent and well known obstetricians have kindly sent the following replies, which we believe will be of interest to all our readers who are engaged in the active practice of obstetrics:

1. Do you use ergot as a routine practice in all cases of labor?

2. If not in all cases, in what particular case?

3. Does any condition after the head is born contraindicate the use of ergot in your opinion? If so, what is it?

4. Is it your experience that the use of ergot at the proper stage is ever followed by any untoward effects or accidents? If so, what are they?

EDWARD P. DAVIS, M.D.,
Professor of Obstetrics in the Jefferson Medical College of Philadelphia.

In response to the request of the Editor of the THERAPEUTIC GAZETTE the writer replies to his inquiries and adds a brief summary of his experience in the employment of ergot in labor cases.

We are accustomed to use ergot in some form in the great majority of cases of labor. The only contraindication to its employment is excessive hemorrhage with a depleted condition of the vessels and a feeble heart. In these cases intravenous saline transfusion is employed freely, with strychnia, and if necessary

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digitalis. The uterus remains contracted in these cases from the stimulating action of the strychnia, supplemented if necessary by compression or packing of the uterus, and ergot is used during convalescence in small doses at frequent intervals to secure permanent uterine contraction.

The reason for not employing ergot at once in these cases lies in the fact that it has seemed to increase the labor of the heart profoundly depressed by loss of blood. Thus in a recent case of central placenta previa, the woman being greatly exsanguinated collapsed twice, and was only rescued by the prompt use of intravenous saline transfusion with hypodermic injections of strychnia, ether, and digitalis. Ergot was not given in this case until forty-eight hours had elapsed after her delivery.

We are not in the habit of administering ergot until the child has been born and the placenta is almost ready to be expelled. Our reasons for this practice are as follows: So soon as the child is born the placenta is very gradually prepared for expulsion by the clotting of blood in the uterine sinuses. It is of the greatest importance that this process be undisturbed. The uterus remains large during this period, and rises in the abdomen until it reaches the umbilicus. No expulsive contraction of the uterus is required, and in most cases no manipulations should be practiced except to keep the hand upon the uterus to see that it does not relax. When the uterus is ready to expel the placenta it contracts upon it, already separated, and forces it into the cervix and sometimes upon the pelvic floor. If expelled without assistance this is accomplished by the contraction of the abdominal muscles aided by the fixation of the diaphragm. Usually, however, the placenta is expelled through the cervix by compressing the uterus and forcing it downward in Credé's method. The edge of the placenta appearing at the vulva is grasped by the thumb and fingers of the obstetrician; the placenta is rotated upon itself and delivered with the cord and membranes. In order that the process of clotting in the walls of the uterus should be as undisturbed as possible we are not in the habit of administering ergot until after the birth of the child; and in spontaneous parturition, where the mother is vigorous and the uterus acts well, we frequently do not give it until the placenta has been delivered. It is then administered usually with strychnia to produce a firm and tonic contraction.

If after the head is born the presence of excessively large shoulders is diagnosticated, or a prolapse of a hand or arm, we should not administer ergot until the child has been delivered. In these cases manipulation may be necessary to complete delivery, and it is better not to arouse tonic contraction of the uterus until that organ is empty.

We have never seen ergot used in the manner described produce the slightest untoward effects. An occasional complaint of headache we have not been able to ascribe to ergot alone, as it frequently happens after taking ether or after a severe, exhausting parturition. The smallest dose which we have employed in the manner described has been one drachm of the fluid extract.

In cases of parturition requiring the use of forceps we are in the habit of using "Aseptic Ergot" hypodermically in 30-minim doses given after the child is born, and usually just before the expulsion of the placenta. In cases where patients have been admitted to the Maternity exhausted we have repeatedly given 2 drachms of "Aseptic Ergot" hypodermically within an hour. In private cases in better condition it is rarely necessary to administer more than two doses. The advantage of giving ergot hypodermically in forceps cases is considerable. Some patients are nauseated and vomit after taking ether, and ergot administered by the mouth would be useless. The action of the ergot given hypodermically is more prompt and efficient, and its administration is done before the patient rouses from ether. We have never seen abscesses follow this practice.

Our experience leads us to believe that the results desired in the administration of ergot are best obtained by giving strychnia and ergot. Clinically speaking ergot acts upon the uterine muscle, while strychnia rouses the ganglia of the uterus and stimulates the patient's nervous system. In hospital practice we use strychnia and ergot during the first week or sixteen days of the puerperal period with excellent results. Lactation is not interfered with, but rather promoted, and nutrition distinctly stimulated.

In our experience with patients treated

in the manner described after-pains are exceedingly rare. In addition to the use of ergot and strychnia the uterus is watched closely during and after labor to secure firm contraction. The binder is not applied until the uterus is properly contracted. The womb is held or massaged until it becomes firm. In operative cases a tendency to hemorrhage is controlled by the intrauterine tampon of iodoform gauze. After-pains in these patients are so rare that we do not recall a case severe enough and typical enough to present at clinic. Whether the treatment described produces this rare occurrence of after-pains may be a question, but the coincidence exists.

In attempting to regulate the dose of ergot we have never administered more than 2 drachms by mouth at one time. In securing the effect of the drug through a period of several hours we are accustomed to give it for effect only, paying little attention to the total quantity administered. A routine employment of manual compression of the uterus and the administration of strychnia undoubtedly reduces greatly the quantity of ergot which we have occasion to administer.

We have never in our experience witnessed any untoward results from the use of ergot. Gangrene, which is sometimes attributed to this drug, has occurred in none of our cases. Within the last few years preparations have been introduced especially adapted for hypodermic use. Niebergall (*Centralblatt für Gynäkologie,* No. 19, 1901) reports his experience in the use of dialyzed ergot manufactured by Golaz. This preparation is a clear, reddish-brown, transparent fluid having an agreeable odor and taste. It is easily injected by a hypodermic syringe without pain. The contents of two hypodermic syringes may be given without dilution with water during a labor. By the stomach from 5 to 20 drops during a case of labor was administered. Niebergall reports six cases in which he used this preparation during parturition. The drug was given to bring on good uterine contractions in cases where delivery through the vagina was indicated, and one to two doses of 20 drops produced efficient pains which terminated labor. The child was born in from two to four hours after the administration of the remedy. The children showed no ill effects from its use.

In thirteen cases he used this preparation immediately after the birth of the child to prevent hemorrhage. Injections were made in the region of the nates, and absorption was stimulated by gentle massage over the point of injection. Some of these cases had been delivered by forceps, others by version, one was a case of twin pregnancy, one of hydramnios, and one of precipitate labor. In all of these good uterine contractions followed injection, and all of the patients did well.

He also records eight cases of abortion in which this preparation of ergot was given to check hemorrhage in inevitable abortion and to secure the expulsion of the ovum. It proved most efficient.

In cases of hemorrhage from a nonpregnant uterus this preparation of ergot was of value in twelve cases in doses of from 5 to 20 drops given in water, and in some cases combined with stypticin. In three cases of bleeding complicated by the presence of myomata the drug gave especially good results.

An excellent review of the literature of ergot is given by Palm (*Monatschrift f. Geburtshülfe u. Gynäkologie,* Bd. xvi, Heft 5, 1902). He describes a number of active principles isolated from ergot, among them sphacelotoxin, ergochrysin, secalin, chrysotoxin, and secalintoxin.

For hypodermic use spasmotin, which is a chloride of chrysotoxin, has been found of especial value. Among manufacturers whose preparations have been put upon the market may be mentioned Kobert, Tanret, Bombelon, Denzel, Schulz-Kohlmann, Golaz, and Parke, Davis & Co. Palm believes that the efficient principle of ergot is chrysotoxin.

In the *Archiv für Gynäkologie,* Bd. lxvii, Heft 3, 1902, Palm records his experiments in the Pharmacological Institute and the Gynecological Clinic at Göttingen. Reviewing the literature of the subject we find that Kobert and Keller consider cornutin the active principle of ergot, while Mulenhoff and Jacobi consider sphacelotoxin as the essential element. He reviews his experiments with the different preparations which have been already named. He also adds chemical tests of these different preparations, giving their contents and reactions. He then describes his experiments upon animals with spasmotin, the chloride of chrysotoxin.

In addition to experiments upon animals he used spasmotin in seventeen cases of labor to secure efficient uterine contractions. On the average a result was seen from the hypodermic use of spasmotin in thirty to forty minutes after injection. In one case only were uterine contractions more vigorous than desired, and in this case the death of the fetus seemed to result from birth pressure. In the other sixteen cases the results were excellent.

The dosage was from 1 to 3 centigrammes. A difference was observed in the action of the drug in cases where a dead fetus was retained within the uterus. The longer the dead fetus had been retained the more prompt was the working of the drug and the smaller the dose required.

In some cases of induced labor the drug was given to arouse uterine contractions, and with good results. In all cases it was used hypodermically, being injected into the cellular tissue above the breasts. The injections gave very little pain and were not followed by irritation. In one case only, on the sixth day after labor, there developed a small necrotic area in the skin without fever or the formation of pus. In a few cases a slight thickening of the skin was observed at the point of injection. It was considered of great importance that the injections be made under strict aseptic precautions, and that the drug be introduced deeply under the connective tissue, and light massage employed to secure prompt absorption. No injurious effect from this treatment could be observed upon secretion of milk.

Our experience has been limited to the use of fluid extract of ergot (Squibb), the ergotin of Bombelon, and the "Aseptic Ergot" and "Ergone" of Parke, Davis & Co. In several emergencies we have injected hypodermically the fluid extract of ergot, no other preparation being available. While irritation has followed this injection we have not seen abscess develop. Ergotin gave satisfactory results without abscess, but seemed less prompt in action and was less conveniently supplied than "Aseptic Ergot."

We have employed "Aseptic Ergot" for a number of years in private and hospital practice, aggregating several hundred injections. We have had no abscesses follow this practice, and in a few cases only slight thickening of the skin with discoloration for a short time. We are accustomed to instruct our patients to provide "Aseptic Ergot" and fluid extract of ergot for confinement, and employ both preparations.

Our experience with "Ergone" is not sufficient to warrant conclusions.

In using ergot hypodermically especial care is taken to have syringes and needles aseptic. The side of the nates or the outer aspect of the thigh is selected as the site for injection. The skin is thoroughly washed and then thoroughly rubbed with alcohol. The needle is inserted at almost right angles to the body, going beneath the skin and superficial fascia. In our experience the deeper the injection the less the subsequent pain and irritation.

We have had no experience with ergot given to bring on induced labor. In cases where the nervous system is slow to respond to the introduction of bougies we have preferred to use tonic doses of strychnia.

BARTON COOKE HIRST, M.D.,
Professor of Obstetrics in the Medical Department of the University of Pennsylvania.

I have used ergot as a routine practice in all cases of labor for the last fifteen years. My reason for doing so is that having had in the early part of my experience some serious cases of postpartum hemorrhage from relaxation of the uterus, I feel that every precaution possible to prevent this accident ought to be taken in every case. I have never seen any disadvantage from the use of ergot. My practice is to give it as soon as the child's body escapes from the mother. I do not know of any condition which would contraindicate its use, except a very irritable stomach and persistent vomiting throughout labor. But even in these cases, after the labor is over, the nausea and vomiting often cease, and I have seen ergot tolerated by the stomach perfectly well when nothing would have been retained while the labor pains were occurring. If it is necessary to deeply anesthetize the patient for some operative delivery, if she has had a history of postpartum hemorrhage before, if her labor has been unusually long and she shows symptoms of exhaustion, and if she has had hydramnios, or twins, with unusual distention of the uterine muscle, or if she has had placenta previa, I give a deep hypodermic injec-

tion of ergot into the thigh as soon as the uterus is evacuated. In the case of twins, I have been in the habit of giving a drachm of ergot by the mouth after the birth of the first child, if there is nothing about the condition of the second child to obstruct labor.

The second and third questions are answered in the above.

As to the fourth question, I have not personally seen any disadvantage from the routine use of ergot. It is claimed that so-called hour-glass contraction of the uterus may develop and may complicate the expulsion of the placenta; but in a large experience I have not seen this result from the use of ergot, and therefore do not regard this argument as a good one against the use of it.

J. Chalmers Cameron, M.D.,
Professor of Obstetrics in McGill University.

Yours to hand inquiring as to my practice and teaching as regards the use of ergot in cases of labor. I will reply to your questions seriatim:

1. I use ergot in all cases of labor, unless specially contraindicated; but my invariable rule is to administer it only *when the uterus is empty—i.e.,* after the expulsion of the placenta and membranes.

2. In all cases not contraindicated.

3. I consider the administration of ergot when the head is born to be very questionable indeed. The third stage may be much hindered or complicated by such practice, especially if the uterus is slow in detaching the placenta, or has been exhausted by a long labor, or is in a state of tonic contraction, or if manual separation becomes necessary. If the ergot be not given until the placenta and membranes are away, in my experience, no harm results in ordinary cases. As contraindications to the use of ergot, even at that time, I would mention *eclampsia,* where it is thought advisable to promote a free bleeding from the uterus, and tetanic contraction of the uterus following a long labor with early loss of the liquor amnii. Of course the ordinary systemic contraindications to the use of ergot apply at the time of labor as they would at other times.

4. I have never seen any untoward effects or accidents attributable to the use of ergot administered in suitable cases, as described above. I have used it as a routine for twenty-two years in hospital and over thirty years in private practice.

Stricker Coles, M.D.,
Clinical Lecturer on Obstetrics in the Jefferson Medical College.

I give ergot after every case of labor, but never use it before the uterus is empty. After normal cases a teaspoonful of the fluid extract is given by the mouth, and in operative cases, or when for any reason the uterus is not likely to contract properly, one or two tubes of "Ergot Aseptic" is given hypodermically.

I always wait until the placenta is delivered, as I think it best to allow the normal separation and expulsion of the placenta to take place before its administration; giving it as soon as the head is born often causes retention of the placenta by tonic contractions of the uterus.

Time may be saved by the early administration, but I always keep the uterus under observation for an hour afterward, and the ergot will have time to act before I leave the patient.

I have never had any untoward effects from the use of this drug and consider it of great value, not only directly after labor but also during the first ten days of the puerperal period; when given in from 20- to 30-drop doses three or four times a day it promotes involution and acts as a safeguard against hemorrhage and infection.

Wilmer Krusen, M.D.,
Professor of Gynecology in Medical Department of Temple College, Philadelphia, and Gynecologist to Samaritan Hospital.

In regard to the value of ergot in parturition, I do not believe that ergot should be used as a routine practice in all cases of labor any more than one would use a cardiac stimulant or a saline transfusion as a routine practice. There exists a positive indication—which is readily determined—for the use of this drug; and as all drugs should be given for a definite purpose and in sufficient dosage to produce the desired effect, so ergot should be used until its oxytocic action is apparent.

Ergot is particularly indicated in those cases in which the retraction and contraction of the uterus is not satisfactory after it is completely emptied. I have

found it particularly useful after chloroform anesthesia when there exists a tendency to uterine relaxation.

I believe no well trained obstetrician will ever use ergot until the completion of the third stage of labor. Its use during the second stage of labor in sufficient doses may produce a tetanic condition of the uterus and result in rupture of that organ, if some obstruction to delivery exists. The use of ergot during the third stage of labor should be strongly condemned, as it is apt to produce a retention rather than to favor the expulsion of the placenta. The judicious employment of the Credé method of expression of the placenta will do far more to secure the delivery of that organ and to produce satisfactory uterine contractions than any drug given either hypodermically or per os.

Even in the treatment of postpartum hemorrhage the chief value of ergot seems to be to maintain contraction, which has been more quickly produced by aseptic intrauterine manipulation or the introduction of the sterile gauze pack.

I have never seen any untoward effects or accidents produced by the proper use of ergot after the completion of the third stage of labor.

A word might be said of the value of ergot in cases of puerperal sepsis. A relaxed uterus with its increased internal surface furnishes an excellent opportunity for the absorption of pathogenic material; while, on the other hand, the use of ergot and strychnia will promote involution and, by causing uterine contractions, render less liable the transmission of infection through sinuses and lymphatics.

A SYMPOSIUM UPON THE DIAGNOSIS AND TREATMENT OF GASTRIC DISORDERS.

METHODS FOR DIAGNOSTICATING DISEASES OF THE STOMACH.

By Joseph Sailer, M.D., Philadelphia,
Instructor in Clinical Medicine, University of Pennsylvania.

In order to devise a rational treatment for diseases of the stomach we must know three things: First, the condition of the gastric mucous membrane—that is, whether any pathological lesion, such as chronic or acute inflammation, a neoplasm, or other lesion, exists; secondly, the rapidity with which the stomach empties itself; thirdly, the composition of the juice secreted by the stomach.

The customary method of examining the gastric contents has been to administer a test-meal, and then, at the expiration of a certain time, to remove it, test the acidity present, and perhaps the degree of digestive activity. This method, however, fails to give very accurate data. The degree of acidity depends upon the quality and quantity of the gastric juice, and upon the amount of the test-meal that has been retained, and as these factors may vary independently, it follows that it is impossible to determine which one is of the greatest influence. Thus Sahli, in advocating his method, remarks that occasionally the more accurate information it gives has shown that a case apparently suffering from subacidity really has a gastric juice excessively rich in acid.

The work of Pawlow, which has almost reconstructed the physiology of digestion, indicates clearly that our previous methods are inadequate as well as inaccurate. The deficiencies in the methods of examination have been recognized for a long time, and numerous attempts have been made to correct them, but none of them has as yet received any general recognition. A complete analysis of the stomach contents should enable us to determine two things: first, the total quantity of the stomach contents at the time the test-meal is removed; secondly, the relative proportions of stomach contents and gastric juice.

The methods for determining the total quantity of the gastric contents all depend upon the principle first enunciated by Mathieu and Rémond in 1890. This principle was not new, but they claimed that the application was. It is based upon the fact that, given a solution containing a measurable substance, if a portion of that solution be removed, and the remainder diluted with a definite quantity of water, and the substance estimated in each, it is possible to calculate the amount of material which has been diluted. Or, to put the matter concretely, the authors contend that if, after removing the test-meal, a definite quantity of water (from 200 to 400 Cc.) be poured into the tube, mixed with the remaining stomach contents, and then withdrawn, it should be

possible, by estimating the total acidity in each portion and knowing the quantity of water added, to determine the remainder of the stomach contents. This, of course, is easily done by remembering that the total acidities vary directly as the sum of the diluting water and the remainder varies to the remainder. Or, if A=the total acidity of the undiluted portion, A^1=the total acidity of the diluted contents, Q=the quantity of water added, and X=the remainder of the stomach contents, then the proportion is as follows:

$$A : A^1 :: Q+X : X. \quad \text{Or, } X = \frac{A^1 \times Q}{A - A^1}$$

The difficulties of this method were early recognized. According to Oppler, saliva might be mixed with the first portion, reducing the total acidity. In tenacious fluids it might be difficult to obtain the first portion. If there is any vomiting it will vitiate the results, and in specimens with a low total acidity the calculations would be untrustworthy. Other defects which have occurred to me in the course of my experience with the method I shall speak of later.

In 1895 Straus suggested a modification of this method, which consisted in the fact that he employed the specific gravity of the two portions, instead of the total acidity, for the purpose of indicating the degree of dilution. The method was as follows:

The test-meal was expressed in the usual way; then 100 Cc. of water was poured into the tube, and the patient shaken by grasping him firmly around the hips, in order to secure a thorough mixture. The stomach contents were then expressed before and after dilution and the specific gravity of both fluids taken with an ordinary areometer, avoiding the use of the pycnometer. Straus devised a rather complicated formula that determined at once the total quantity of the stomach contents, but Reichman suggested that if only the remainder were calculated the following brief formula would be sufficient:

$$X = \frac{A\,(S^1 - 1)}{S - S^1}$$

In this formula X=the remainder; A=the quantity of water added; S=the specific gravity of the undiluted portion of the meal; and S^1=the specific gravity of the diluted portion of the meal.

This method, of course, is often difficult to carry out, particularly if the first portion of the stomach contents is tenacious.

Cohnheim, in 1900, suggested a modification of the Mathieu-Rémond method, to be used, however, only in cases of subacidity. It consists merely in adding an acid solution to the stomach contents before removal in order to be certain that the acidity would be sufficiently high for convenient estimation. Cohnheim devised a complicated formula for the purpose of expressing his results, which, when finally reconstructed, results in the following:

$$X\,(\text{the remaining gastric contents}) = \frac{Q \times (A^2 - A^3)}{A^3 - A^1}$$

In this formula

Q=the amount of HCl solution employed;

A^1=the total acidity of the test-meal;

A^2=the total acidity of the acid solution;

A^3=the total acidity of the second portion.

Cohnheim was the first to test the efficiency of the mixture. He found that sinking and raising the funnel three times produced a mixture that gave the same results for total acidity in various portions, and therefore the mixture must have been thorough. The objection to the method—that the mixture might be poor—applied to all other methods, and, he believed, could be overcome. He found, moreover, that when there was much mucus in the gastric contents free dilution diminished the amount of error.

In the meantime other men were working with certain modifications of the method, which may be mentioned for historical interest, although they are apparently of so cumbersome a nature that they have been abandoned.

Tappeiner used sugar and salt solutions, estimating the diminution in the amount of sugar and salt as a result of the dilution, to indicate the remainder.

Jaworski employed practically the same method.

Moritz and Goldschmidt, working in the laboratory of the former, used glucose solutions, estimating the degree of dilution by Moritz's own method. Goldschmidt, however, also employed Straus's method, devising a simple way of calculating the result. He dilutes with 50 Cc. of water, then filters both stomach con-

tents and the diluted remainder. He takes the specific gravity, and to 50 Cc. of water adds sufficient of the stomach contents to make the specific gravity equal to that of the diluted portion. The amount of stomach contents added of course equals the remainder. This method would be unavailable if the test-meal were less than the remainder. Control experiments, that he made apparently *in vitro,* although he does not so state, are said to prove the accuracy of the method.

Sörensen and Brandenburg estimated the total nitrogen before and after dilution, a method too complicated for clinical purposes.

For the past year I have been working with the method of Mathieu and Rémond in order to determine, if possible, first, whether the method was as accurate as its advocates claim, and secondly, whether the estimation obtained from the estimation of the total stomach contents was of importance in diagnosis.

My first experiments were made with a solution of HCl, dividing into two portions, measuring each. and then diluting the second portion, making the estimations and calculations in the usual way. The results were of course entirely satisfactory. When, however, instead of solutions of dilute HCl I employed test-meals, dividing into two portions, filtering the first, then diluting the second, filtering, estimating the total acidity of each, and making the calculations, I found that at first the error was so great that the method was practically valueless. After a series of tests I found that at least part of the error was caused by filtering the stomach contents, the total acidity in the filtrate being, as a rule, lower than in the unfiltered portion. Further investigation revealed a second error. If a test-meal is allowed to stand, and then portions removed for testing the total acidity, it will be found that at different levels the acidity varies considerably, as a rule, the low levels showing a much higher acidity than the upper levels, unless, as sometimes happens, there is a considerable amount of mucus present.[1] It therefore became apparent that to get a constant definite result for any test-meal it was necessary to mix the test-meal thoroughly before removing any portion for chemical analysis. If the test-meal is at all thick, as it often is, this thorough mixing was found to be practically impossible, so that I finally determined to dilute the test-meal considerably before mixing. This dilution was usually made with nine parts of its bulk of water. In this degree of dilution it becomes fluid and can be thoroughly mixed by pouring repeatedly from one vessel into another.

Finally, by observing carefully the principles of dilution and thorough mixing, I was enabled to obtain fairly satisfactory results on stomach contents tested outside the body. This, however, was no proof that the estimation made upon the patient is accurate. A considerable number of errors may occur in actual practice. First, the stomach contents may not be thoroughly mixed, so that the portion withdrawn does not represent accurately the total acidity of the gastric contents. Second, saliva or mucus may be mixed with this portion during withdrawal, altering its total acidity. Third, in the mixture of the water with the remainder, either, as is usually the case, a too dilute solution will be withdrawn, or one that is too concentrated, in the first case decreasing the apparent remainder, in the second case increasing it. Fourth, some of the stomach contents may escape into the intestine during the operation, thus escaping dilution, and rendering the final result less than it should be. Fifth, there may be continuous secretion of stomach contents between the withdrawal of the first and second portions, rendering the acidity higher, and tending to increase the final result. It will be observed that some of these errors have a tendency to counterbalance each other, particularly the fourth and fifth.

Certain other errors are so obvious that it is merely necessary to mention them. The amount of stomach contents first withdrawn may be too small to make the estimation of any value. This is occasionally also true of the diluted portion. The patient may vomit during the operation, or may secrete a considerable quantity of saliva, which may be inadvertently expectorated into the test-meal or swallowed, in either case rendering the result uncertain.

The difficulty of securing a thorough mixture of the second portion was perceived by Mathieu and Rémond, and all subsequent investigators. Practically only two methods have been devised to overcome it: First, that of Mathieu and Rémond, which has been used by most

subsequent investigators, and is particularly lauded by Cohnheim—the depressing of the funnel, allowing it to refill, and then raising it again. Cohnheim states that by repeating this procedure three times he has been enabled to obtain a perfect mixture, and has proved this by testing separate portions. Secondly, the method of Straus of shaking the patient.

The method that I employ differs from either of these, although the principle controlling it is the same as that of the method of Mathieu and Rémond. Using a bulb tube I compress the tube between the funnel and the bulb, and then alternately squeezing and relaxing the bulb I force a powerful jet into the stomach contents, and then withdraw some of them into the bulb, the object, of course, being to create eddies by means of which the stomach contents are thoroughly mixed. As I shall show later, I have reasons to believe that neither this method nor that of Mathieu and Rémond is invariably satisfactory. The technique that I have finally devised is as follows:

At the proper time after the meal has been taken—that is, about one hour for the bread and water meal, and about three hours for a proteid meal—a tube of fairly large caliber is introduced, and as much as possible of the meal withdrawn. Three hundred cubic centimeters of water is then poured into the tube and mixed as thoroughly as possible with the remaining stomach contents, and as much as possible of this drawn off into a second vessel. The first portion is then tested by Congo red and the phloroglucin-vanillin mixture for free HCl. It is then measured, diluted with nine times its volume of water, and thoroughly mixed by pouring from one beaker to another a number of times. Fifty or 100 Cc. are removed and tested for the total acidity, and this operation is repeated once or twice. Usually the result should not differ more than one on the Ewald scale. It makes no difference, however, what method of notation is employed for stating the HCl present.

The second portion of the meal is then thoroughly mixed by pouring from one vessel into another. Dilution is usually unnecessary unless the second portion be very thick. Fifty centimeters are tested at a time for the total acidity, two or three tests being usually sufficient, for the variation is commonly very slight. If there is much mucus in the second portion thorough dilution is required, and even then it may be difficult to get a constant result. The total acidity of the second portion is multiplied by 300, the product divided by the difference between the total acidities of the first and second portions, and the quotient equals the remainder in cubic centimeters.

Occasionally very extraordinary results are obtained. On several occasions the total acidity of the second, or diluted, portion has been greater than the total acidity of the first portion. This is especially likely to occur if the first portion obtained is small, and is possibly due to the admixture of saliva or mucus. In cases of lowered acidity the estimation of the second portion becomes very difficult unless a large quantity is obtained, and one or two hundred centimeters can be tested at a time. If there is retention of the gastric contents, and a large remainder, control tests indicate that the mixture of water with it is imperfect, and the calculated remainder consequently too small. The following tables show the results obtained in a fairly satisfactory series of cases:

BREAD AND WATER MEAL.

	Time (minutes).	Stomach Contents.		Total.	T. A.
		1st portion.	Remainder.		
1	90	37	157	194	32
	60	37	157	194	34
	60	60	64	124	16
2	60	110	67	177	76
3	60?	385	180	565	56
4	60	28	104	132	82
	120	38	60	98	26
	120	130	132	262	98
5	60	41	117	156	64
6	60	91	100	191	82.4
7	105	41	54	95	92
	90	9.6	210	219.6	84
8	60	62	157	219	70
9	45	102	54	156	51
10	70	70	55	125	84
11	60	77	103	180	50
	50	27	52	79	89
12	90	28	18	46	105
13	70	42	67	109	80
14	60	47	40	87	60
	45	103	96	199	44
15	70	105	93	198	55
16	50	35	120	155	60
17	65	35	19	54	76
18	60	40	51	91	57
19	60	53	31	84	76
	60	20	31.6	51.6	42
	45	37	15	52	46
20	45	24	200	224	28
	50	63	30	93	60
21	50	13	58	71	21.5
	75	52	104	156	70
	105	61	44	105	98
22	60	78	80	158	64
	50	95	49	144	44
23	90	22	23.5	45.5	24
	60	39	226	265	40
24	40	180	59	189	72
	65	145	42	187	83
25	70	30	98	128	30

PROTEID MEAL.

	Time.		Stomach Contents.		Total.	T. A.
	Hrs.	Min.	1st portion.	Remainder.		
1	3	20	63	64	128	126
2	2	45	33	75	108	70
3	3	15	140	98.6	238.6	94
	3	...	14	76	90	32.5
	3	...	30	28	58	88
	3	...	26	41.5	67.5	56
4	1	45	57	202	259	194
5	2	45	92	152	244	83
6	3	50	44	24	68	89
7	3	15	265	52	317	90
8	2	...	31	39	80	118
	2	30	81	71	152	132
	2	30	180	54	204	96
9	3	...	59	44	103	58
10	3	20	14	21.6	35.6	104
	1	...	95	136	231	34
	3	30	51	82	133	54
11	3	30	151	80.6	231.6	84

One test of the accuracy of the method is the ability to secure similar results under fairly similar conditions. It will be seen by the results obtained in several examinations upon the same patient that, according to this test, the method is fairly satisfactory. I felt that it was necessary, however, to devise some more certain means for proving its accuracy, and for this purpose I used a second dilution of the stomach contents. If the remaining stomach contents are estimated by the method that I have given, should the second expression fail completely to empty the stomach and another measured portion of water be added, and the stomach contents again calculated from this, it is obvious that the following equation should be correct:

B (the calculated remainder) + Q (the amount of water added)—N (the amount obtained at the second expression) should equal the remainder, as calculated by the third dilution, or B+Q—N=R.

I have made this test satisfactorily in all six times. Five times the result, as calculated from the third portion, was in excess of what it should have been. Once it was too little. The figures are as follows:

	Remainder as calculated after second portion was removed.	Remainder as calculated after third portion was removed.
1	78	175.6
2	118	182
3	78	675
4	95	261
5	212	400
6	144	41.3

It follows from this examination that the method has not the degree of accuracy which has been claimed for it by foreign writers. I think that the chief difficulty is in the mixture. In all probability the chyme in the pyloric portion of the stomach, which is the most acid, fails to mix thoroughly with the first water of dilution. Therefore the second portion has a lower total acidity than it should have. It mixes, however, partially with the third water of dilution, and gives it a proportionately high acidity, so that the calculated third portion is very much too great. If this be correct it follows that, in the majority of cases, the results given in my first table are too low, and that the remainder should be higher. Of course this introduces the probability of another error, already noted in the preliminary portion of the paper—that is, the first portion does not represent accurately the stomach contents, but probably consists largely of the chyme drawn from the more proximal portion of the stomach, of a somewhat lower acidity than the chyme in the pyloric portion.

It does not follow, however, from the results of these experiments, that Mathieu and Rémond's method is to be wholly condemned, nor is it to be supposed that some of the other methods employed (that of Straus, for example) are any better. All these methods depend for their accuracy upon a thorough mixing of the stomach contents before expression, and upon the thorough mixing of the remainder with the fluid used for dilution. It has hitherto been assumed, somewhat too readily, I believe, that the thorough mixing of the chyme before expression took place naturally. And it has been assumed by previous investigators, particularly Cohnheim, that if the diluted second portion showed the same degree of acidity in different parts, we were justified in believing the mixture to be perfect. Notwithstanding these two defects, the method in general gives fairly approximate results, which are much more desirable than pure guesswork. If a second dilution is employed the results will indicate whether the estimated remainder is too much or too little.

The information which this method attempts to obtain is, I believe, essential to a clear knowledge of the condition of the stomach, because it is indispensable to the second important test, the estimation of the proportion of test-meal and gastric juice in the stomach contents, by means

of which we would be able to determine with a high degree of accuracy the gastric motility, and the exact composition of the gastric juice, two points upon which our previous methods of analyzing the stomach contents have left us entirely in ignorance.

Therefore I believe that an effort should be made so to perfect the technique of this method that the results obtained will be sufficiently accurate to enable us to proceed to the second estimation either by one of the methods already suggested, or by some other method which offers satisfactory results.

In an attempt to perfect the method I have combined the second and third portions, and by calculation estimated the total acidity of these portions for a total dilution of the two quantities of water added. Presumably the approximate result by this method is very much closer to the true result, and I am inclined to believe that if, instead of diluting and attempting to mix once, we dilute and mix two or three times, the final result will reach a degree of accuracy that will enable us to determine very closely the actual condition of the gastric secretions.

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HYPERESTHESIA OF THE GASTRIC MUCOUS MEMBRANE AND ITS TREATMENT.[1]

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I wish to consider in this brief communication various questions connected with the symptom-group that is usually spoken of as functional hyperacidity. The use of the term functional, of course, excludes all structural changes in the gastric mucous membrane, such as ulcer and the lesions arising as the result of marked stagnation of the gastric contents. It also excludes diseases of the adjacent organs, which by local irritation produce excessive acid secretion, such as duodenal ulcer, gall-stones, and cholecystitis. I wish to show that the increase in HCl secretion in cases of so-called hyperacidity is not the only factor in the production of symptoms, but that the pain is produced quite as much by gastric hyperesthesia as by an excess of acid.

Among 100 consecutive cases of gastric disease occurring in my private practice, 79 may be fairly considered to be due to purely functional disorders without demonstrable structural change in the stomach. These figures suggest that a very large proportion of disorders of the stomach which a medical man sees in his private work are functional as compared with organic or structural lesions. In round numbers functional disturbances from reflex causes or local neurosis are responsible for three-fourths of the cases with gastric symptoms that we are called upon to treat in our private practice.

I have assumed that the normal limits of total acidity are from 30 to 60, recognizing that these are arbitrary limits often overstepped in both directions in health. I have assumed that the total acidity fairly represents the HCl secretion, provided it can be shown that there is not a decided amount of organic acid present. Emphasis must also be laid upon the fact that in tabulating the results of gastric analysis we must deal in round numbers, since the best of our present methods are faulty and approximate only. Therefore, I may be pardoned if I assume 60 as the upper limit of normal gastric acidity. Of my 79 cases, 23 showed a total acidity above 60, and can be placed in the class of hyperacidity. This is nearly one-third of the total number. Twenty-nine were between the normal limits of 30 and 60; 27 were below 30. Lichty, of Pittsburg, in a recent paper (*American Medicine*, Oct. 28, 1905) states that in his experience of 225 consecutive patients (not necessarily exclusively functional) about one-third showed more than the normal amount of acid.

The Responsibility of Hyperacidity for Gastric Symptoms.—Of my 23 cases of

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hyperacidity, all but two suffered more or less sharp pain, coming on about the height of digestion, and relieved by food or alkali. This may be considered the most common characteristic symptom of the morbid condition known as hyperacidity. Nine of the twenty-nine cases with total acidities within the normal limits exhibited the same symptom. But a still more noteworthy fact is that three cases of total acidity under 30 quite constantly suffered from this form of pain, which came on some hours after eating and was relieved by food and alkali.

To summarize: (1) Many cases with a total acidity within the normal limits or below suffer with the form of pain that is usually considered to be due to an excess of acid. (2) A certain proportion of cases showing an amount of acid above the normal exhibit no gastric symptoms whatever.

This apparent departure from what our ideas of hyperacidity have led us to expect may be explained by two suppositions.

First, our methods of estimating gastric secretion are faulty. Our test breakfasts, even our test-meals, are not always sufficiently stimulating to the gastric mucous membrane to show what the stomach glands are accustomed to do under usual circumstances. However, almost all my cases were examined more than once and with different meals, and as I have said, I have not attempted to draw sharp distinctions, but have tabulated each case where the general average of examination showed it to belong. Therefore we can largely disregard this phase of the subject.

Secondly, it has long been recognized that some other element besides an excess of acid is required to produce gastric symptoms in hyperacidity. This second element is a sensory neurosis producing hyperesthesia of the gastric mucous membrane, which renders it intolerant of the increased free acid. If this hyperesthesia is not present, then hyperacidity will not produce gastric symptoms. This explains the two cases in my list and the cases referred to by von Noorden and Riegel, in which there was a total acidity much above the normal without gastric symptoms. If hyperesthesia is present, and at the same time the acid is increased, then there will be pain at the height of digestion relieved by food and alkali. If the hyperesthesia is more intense, then even normal amounts of free acid will cause pain, and in the more severe grades of the sensory neurosis even a subnormal amount of acid will produce symptoms and discomfort. That is, if the hyperesthesia is severe enough we will have the symptoms usually associated in our minds with hyperacidity even though the acid secretion is below normal. The clinical lesson for us in this is that we must not be surprised or thrown off the track in such cases when with a clinical picture of hyperacidity we find normal or subnormal gastric secretion. For in these cases the hyperesthesia is the condition against which our treatment is particularly directed, and the degree of the acid is a secondary consideration.

I have found that hypersecretion, both alimentary and continuous, is infrequent among the class of patients that make up one's private practice. My list includes but three undoubted cases of hypersecretion. I need not speak of the laboratory findings in this condition. Its symptomatology in my experience is that of a very obstinate hyperesthesia and hyperacidity which do not yield to ordinary remedies, and are often associated with severe paroxysms of pain and vomiting which are probably due to spasm of the pylorus.

Treatment of Hyperesthesia.—It is needless to say that removal of the cause is the most important part of the treatment.

In my series of 35 cases of hyperesthesia, 14 were women and 21 men.

The women were almost invariably of the neurotic type, and in most of them (11 cases) the gastric symptoms seemed to be a manifestation of this condition.

The men were chiefly brain-workers: 9 were students, 3 physicians, 2 lawyers, and 3 clerks, or 17 brain-workers in a total of 21 cases.

The element of overwork seemed to play an important part in the production of the neurasthenic state; thus, of the total of 35 cases, 11 men and three women were distinctly overworked or under some nervous strain of responsibility or anxiety. Abuse of tobacco seemed to be responsible in four cases, alcohol in one, and abuse of other narcotics (morphia) in one. Improper eating appeared to be the exciting

cause in two cases only, and here the condition was probably a mild gastritis acida.

Breaking of the Vicious Circle.—In these cases there are usually certain morbid conditions which may be the direct result of the disturbance of gastric function or may be merely coincident with it, but which in either case have a deleterious effect upon the organism, and together with the primary affection form a vicious circle. To break this circle is often absolutely essential to the patient's improvement.

The first of these conditions is *malnutrition.* Although there is usually abundant gastric secretion the pain makes the patient very careful in his diet, and the result is that he is frequently overcautious. This must be kept in mind in the regulation of the dietary. The importance of proper nutrition in the treatment of the neurasthenia, which is a frequent exciting cause of the gastric symptoms, need not be emphasized.

The second of the associated conditions that must be watched for is *anemia.* A very moderate degree of secondary anemia of the chlorotic type was the usual blood change in my series. In none was there a true chlorosis. I believe that the condition of the blood is an important element in these cases, although the anemia is usually not of a severe type.

Constipation is the third important link in the vicious circle. A marked degree of constipation was present in 15 of my 21 cases of hyperacidity. It is generally recognized that constipation plays some part in the symptom-complex of these cases of hyperesthesia and hyperacidity. Von Noorden goes so far as to claim that constipation is a direct cause of hyperacidity. I have always found that these cases are better when their bowels are moving freely, but have never been able to trace any direct causal relation between the two conditions. Perhaps the best laxative in the earlier and acute stages is the mixture of magnesia and rhubarb that is given to neutralize the acidity. However, regulation of the diet must be relied upon for permanent relief. High injections of olive oil have proven a very useful remedy in some of my cases, particularly when the constipation is very chronic.

Symptomatic Treatment.—The acidity. If hyperesthesia is present the gastric acidity must be neutralized as soon as the height of digestion is passed, without regard to whether the acid is increased, normal, or diminished. Naturally the amount of acid secreted regulates the quantity of alkali to be given, and in the cases of hyperesthesia with low acidity the sedative part of the treatment is more important than the alkaline. When the acidity is high alkalies must be given freely. The best mixture in my experience is magnesium carbonate and sodium bicarbonate in doses of 20, 10, or 5 grains, according to the degree of acidity. Powdered rhubarb may be added in cases with constipation. The alkali should be given as a rule two hours after meals.

The Use of Sedatives.—I have always found that a general nervous sedative is one of the most essential parts of the treatment of hyperesthesia, especially in the earlier stages. Such are the bromides, valerianates, sumbul, and asafetida. In the cases of hyperesthesia with low acidity they constitute by far the most important part of the treatment, but their use should not be neglected in hyperacidity. After the acute symptoms are under control remedies directed toward the correction of the primary neurasthenia, such as iron, and especially nux vomica, may be substituted. Local sedatives to the gastric mucous membrane, as bismuth, argentic nitrate, and belladonna and atropine, do much good in certain cases.

Diet.—When we recognize that the condition which we are called upon to treat in this class of cases is a sensory neurosis of the mucous membrane, we can understand that it is of the first importance that the food should be bland and non-irritating. Whether it is composed largely of proteids or not depends upon the amount of acid secretion, but non-irritating it must be. In the first stages, then, the diet should consist of milk, eggs in their various forms, purées of vegetables, scraped meat, and so on.

Later as the irritation subsides the dietary may be increased with due regard (1) to the state of the gastric secretions; (2) to the condition of the patient's nutrition.

I have not the space to enter upon a discussion concerning the various diet-

aries suited to individual cases, but wish to call attention especially to butter fat in the form of cream as one of the best foods for these cases. The value of fats in hyperacidity has long been recognized, and I find butter fat tolerated best of any. In such cases fats act both by inhibiting acid secretion and helping nutrition.

Treatment of the Paroxysms.—The attacks of pain that occur in the course of the severe grades of hyperesthesia and hyperacidity are best relieved by prompt emptying and washing of the stomach by means of the tube. The pain may be combated by alkalies and sedatives, but neither compare in promptness or efficiency with thorough cleaning of the stomach by washing.

The type of paroxysm which occurs in the form of cramps and pain coming on during the evening and at night is best prevented by thorough lavage at 6 P.M., followed by a non-irritating supper of eggs and milk. Occasionally, in aggravated cases, there occur attacks of severe and almost continuous pain accompanied by uncontrollable vomiting of sour material. These paroxysms resemble the clinical picture of gastric ulcer, except that no blood is present in the vomitus or stool. I have found that the best means of controlling these attacks is by rest in bed and rectal feeding until the urgent symptoms are relieved. Then milk should be given by the mouth and the diet gradually increased, as in an ulcer cure.

Although it is not always easy to prove, I am convinced that these more severe and obstinate cases of hyperacidity which are associated with pain and vomiting are cases of hypersecretion, and that the cramp and vomiting are due to tonic pyloric spasm, which is produced by an abnormally large amount of acid stomach contents.

Clinically, hypersecretion differs from hyperacidity with hyperesthesia chiefly in the intensity of the symptoms, the resistance to ordinary means of treatment, and the attacks of pyloric spasm accompanied by vomiting.

The etiology of the two conditions appears to be quite similar, and what has been said concerning the treatment of hyperacidity and hyperesthesia applies equally well to hypersecretion.

THE SURGICAL ASPECTS OF GASTRIC DYSPEPSIA.[1]

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Not so many years ago it would have been considered presumptuous for a surgeon, as such, to express any opinion upon the subject of indigestion in connection with diseases of the stomach. But when, through the daring and persistence of surgeons, diseases of the appendix were finally conquered, and the hereditary terror of the peritoneal cavity had been in great measure dispelled by their achievements in the lower region of the abdominal cavity, it is in no way surprising that they next sought to determine what relief surgical procedures would bring in diseases of the biliary apparatus; and that, having demonstrated their successful application in these two portions of the abdomen, their next step was to attempt to relieve certain chronic affections of the stomach, in whose presence medicine had come to the limit of her resources, and was ready to retreat when the first convenient opportunity offered.

These remarks are not intended in any way to belittle the work that has been done, and that is still being done, by medical men in the region of the upper abdomen; for probably no one knows better than myself how much modern surgery of the upper abdomen is indebted to experimental physiology and to the painstaking, if at times inefficacious, therapeutics of the physician. It is indeed the proud boast of the physicians that men among their own number were among the first to appreciate the natural limitations of medical measures in certain abdominal diseases which have recently become amenable to surgical treatment, and that it is in reality owing to these very men that there is spread before us a field full of such brilliant possibilities of surgical triumph as exists to-day in the surgery of the upper abdomen.

I speak thus of the upper abdomen as a whole, because every surgeon of experience knows how frequently lesions of the first portion of the digestive tract and its attached glands—the liver and

[1]Read before the Philadelphia County Medical Society, Nov. 22, 1905.

the pancreas—occur coincidentally. And although I have chosen to limit my remarks this evening to diseases which are more strictly gastric in character, it has been rare in my own experience for a patient to present lesions of the stomach without also presenting lesions of the duodenum, of the bile-ducts, or of the pancreas. Indeed, I think that the frequency with which such other lesions are the cause of, or at any rate are associated with, gastric disorders is a fact which is slow to win appreciation from the profession at large. Rarely does a patient develop gall-stones without also developing either coincidentally or consecutively perigastric or pyloric adhesions, which more often than not cause gastric symptoms, while the original cause of the mischief, the biliary calculi, may cause no discomfort whatever. In the same manner I am convinced that the frequency with which gastric ulcers are multiple, and with which they extend downward past the pylorus and become duodenal, is grossly underestimated. The statistics of Brinton and of Welch, still so frequently quoted, are twenty to forty years old; and records of the dead-house, as has been learned from the researches of the surgeon—the antemortem pathologist—are no longer of unimpeachable authority.

The time is past when any physician is contented to diagnose a disease by naming one of its most prominent symptoms. As well diagnose appendicitis "pain in the belly" as diagnose some gastric lesion "indigestion." If there is indigestion of one kind or another there must be some cause for it, and we can no longer be satisfied with calling the disorder functional, when to every rational mind a functional derangement is but an expression of organic or structural change. Even hysteria, it seems to me, if it be a disease entity, must have organic changes as its cause, whether such changes are at present appreciable by human sense or not. And so it may be given as a postulate that if there is indigestion there must be a cause for it, and if the indigestion resists the action of diet and rational therapeutics, there must be an organic cause for it; and to remove an organic or mechanical cause, mechanical means are required.

In chronic indigestion, however, mere correction of the diet very frequently fails to restore the gastric functions to the normal condition; and although a certain amount of comfort may be thus obtained, and although the degree of comfort is oftentimes very materially increased by the administration of drugs, it is fatuous to think that in this manner structural changes can be overcome which have been in existence for many months, nay, perhaps for several years. It is quite as logical to expect strychnine, with needle and thread, to sew up the burst artery in a case of cerebral hemiplegia, as to expect all the pepsin manufactured from all the calves that ever existed since the days of the Garden of Eden to overcome and release pyloric stenoses, perigastric adhesions, or other distortions in the region of the upper abdomen. And therefore we reach the conclusion that medical treatment cannot cure, although it may relieve, the symptoms of permanent structural changes.

It is a fact, indeed, that most advanced physicians and surgeons are in accord as to the diseases of the stomach which belong to their respective spheres; and there is really no controversy at the present day upon the main points involved. The physician, it seems to me, is in these diseases of value mainly as a diagnostician. With his stomach-tube, his test-meals, his inflations and percussions of the stomach, he may reach certain valuable conclusions which will confirm the symptomatology of the case, and render positive a diagnosis already tentatively proposed. The physician, however, has been prone to keep his patients under observation, trying first one plan of treatment and then another, without having any very clear idea of the lesions present, and without basing his treatment on any rational physiological or therapeutic laws. And when the physician became at last convinced that the only hope of cure existed (and that one perhaps very remote) in the form of a surgical operation, he then turned over to the surgeon a patient who was already nearly moribund, saying to his surgical confrère, "Here's your chance: perform one of your brilliant operations on this patient, who has been starving to death under my care, and see if you can restore him to his former health as you are claiming to do." If such a patient is

operated on by the too-little conservative surgeon, and does not survive the operation, the physicians in the case wag their heads together, and resolve that they will hereafter let their patients die a natural death, without the terror and discomfort of an operation.

To show that such a picture of the frame of mind of some physicians is not overdrawn, let me quote you the following figures given by Hartmann.[1] In 36 cases of gastric disease seen and treated primarily by himself and his colleagues (surgeons) the mortality of operation was 2.78 per cent; but in a series of 24 cases which had been primarily treated medically, and which were later referred to him by their physicians, the mortality was 24 per cent. Kocher[2] writes: "The majority of practitioners do not sufficiently realize what brilliant results are to be obtained by operative means in chronic affections of the stomach, commonly known as gastric catarrh. Not only can the numerous dangers of ulcerating affections of the stomach, such as hemorrhage, perforation, transition into cancer, be prevented, but the disease and its results may be so rapidly and certainly cured that the medical treatment of obstinate cases must be put in the background. . . . The pain in the stomach disappears immediately after the operation. This is the invariable rule. . . The patient does not require to pay any further attention to the nature of his food. The vomiting disappears. . . . The bowels become regular. . . . Repeated investigation of the gastric contents shows that there is a progressive improvement in the process of digestion; hyperacidity diminishes; if too little acid is present it becomes increased, a statement which is in agreement with Steudel, Carle and Fantino, Kautsch, Hartmann, Sipault, and Mintz."

Such words as these from a surgeon such as Kocher, who weighs well what he writes and knows well whereof he speaks, should be instilled into the mind of every medical man who has cases of chronic gastric indigestion under his care. For what the surgeon at the present day is asking, and what the enlightened physicians are granting him, is to be called into consultation not only when the physician has made up his mind that further medical treatment is useless, but at a much earlier stage of the disease, that the surgeon may have an opportunity to discuss the surgical aspects of the case with the physician, and to determine not merely whether surgery can be of any avail, but at what moment an operation shall be undertaken to give the best results.

But while I am thus insistent in urging early surgical consultation in cases such as these, I well recognize the fact that every patient will not be a suitable subject for operation, and that a suitable operation is not always applicable. A patient well advanced in years who can be kept fairly comfortable by medical means, such as restriction of diet, stomach lavage, and the administration of appropriate drugs, is very likely to be better off under such treatment, and will probably be wiser to continue in it, than he would be to submit to the risk of an operation, which in any particular case might be peculiarly great. The condition of a patient's other organs—his heart, lungs, kidneys, and his general arterial system—must all be taken into consideration. But my plea is that the surgeon, and not the physician, should be asked to make the decision for or against an operation. No modern surgeon worthy of the name is content to be relegated to the position of the barber-surgeon of yore, who stood submissively by and acted as a mere mechanical appliance in the hands of the lordly physician, as this latter from the fulness of his knowledge ordered his menial attendant to bleed the patient or to stop the bloodletting for a disease of which the barber understood nothing, and to produce a result about which he cared less.

The objects for which a surgeon operates in cases of gastric indigestion may be classed under the following headings: (1) Rest; (2) drainage; (3) prevention of cancer; (4) removal of cancer; (5) euthanasia.

1. Rest is the main therapeutic indication in cases of gastric ulcer without pyloric stenosis or dilatation of the stomach. The symptomatology of this condition is beyond the province of my paper to-night; but I may say in passing that it is usually for the relief of hemorrhage

[1] *Gazette Médicale de Paris*, 1902, lxiii, xii Serie, tome ii, p. 361.
[2] Text-book of Operative Surgery, 1903, Eng. ed., p. 199.

that the surgeon is consulted in cases of this kind. The bleeding is usually not great in amount at any one time, but by its persistence, and because it is often undetected, it gradually saps away the patient's strength, and is hence even more of a menace to life than is the profuse bleeding of an acute ulcer.

When a physician seeks to put the ulcerated stomach at rest, the chief means at his disposal is the abolition, either partial or total, of mouth feeding. Meanwhile the patient is given nutrient enemata. Now while nutrient enemata are a means of treatment whose value is thoroughly appreciated by the surgeon, it is one whose value is very often overestimated. The painstaking researches of Edsall and Miller[1] within the last few years have shown that, even under the best conditions, patients fed only by nutritious enemata are slowly starving to death, inasmuch as the rate of elimination always exceeds that of absorption. If this is not the only means by which nutriment is administered, if the stomach receives its quota, however small, then the fullest measure of rest is not attained, since every particle of chyme received into the stomach must pass out of it again by way of the ulcerated pyloric portion. Yet that patients who receive some food by the mouth do not do so badly as those who are prohibited entirely from this means of nutrition is shown by the familiar statistics of Greenough and Joslin.[2] These authors found that of 62 patients treated with no food by the mouth, 32 per cent only were cured; while of 52 patients who received some food by the mouth, 44 per cent were cured. The latter series, to be sure, as is pointed out by Greenough and Joslin, probably included the less severe cases, but even with such an allowance the conclusion is irresistible that the absolute starvation to which the patients in the former series were subjected (notwithstanding their receiving nutrient enemata) had a direct tendency to delay or even prevent their cure, by depressing their recuperative powers. The patients who received no food by the mouth, moreover, remained in the hospital a longer time on the average, evidently for the same reason—failure of recuperative power.

[1]Trans. Coll. Phys. Phila., 1902, xxiv, 225.
[2]*American Journal of the Medical Sciences*, 1899, vol. 118, p. 182.

Now what does surgery propose as a means to secure rest for such gastric lesions? Her plan is to short-circuit the ingested food, so that when it is received into the stomach it passes directly into the jejunum by an artificial opening, and never comes into contact again with the ulcerated pyloric area. In surgical treatment, moreover, mouth feeding is now begun within twelve or twenty-four hours of the operation, and at the end of a week a fairly liberal diet may be allowed. As Kocher remarked in the passage already quoted: "The pain in the stomach disappears immediately after the operation. This is the invariable rule. . . . The patient does not require to pay any further attention to the nature of his food." On the contrary, after over a week of absolute starvation (the average time in Greenough and Joslin's cases during which patients were on nutrient enemata alone was 8.39 days!)—after over a week, I repeat, of starvation, patients treated by medical measures are only then able to increase their diet, with great probability of relapse. For, as pointed out by Mayo Robson and Moynihan,[1] the ulcer in the stomach is like an ulcer on the leg: as soon as it commences to heal the pain ceases. Now in medical treatment it is almost impossible to make the patients willing to continue their guarded diet and other remedial measures when once the pain has ceased; and as the cessation of pain by no means implies cure of the ulcer, relapses are frequent.

If the theory, then, of the surgical treatment is better than that of the medical, how about the practice? What do the physicians accomplish by medical treatment in cases of chronic gastric ulcer, and what has surgery done?

In this, as in every question of treatment, we have both the immediate and remote results to consider: both the recoveries (from medical treatment or from operation) and the cures. Most strictly medical treatises are discreetly silent as to the immediate mortality under medical treatment. Mayo Robson and Moynihan[2] in 1904 stated that under medical treatment the mortality was from 20 to 50 per cent. They quote Bulstrode's statistics for 500 cases of gastric ulcer treated medically from 1897 to 1904, which gave

[1]Surgical Treatment of Diseases of the Stomach, N. Y., 1904, p. 177.
[2]*Loc. cit.*, p. 169.

a mortality of 18 per cent; and as this reckoning included all cases, even the very mildest, on which no one has ever proposed to operate, the mortality under medical treatment would be enormously increased, if only the graver cases were considered. Mumford and Stone in their recent valuable monograph on the "Surgical Aspects of Digestive Disorders," after a fairly extensive review of recent literature, come to the conclusion that, under medical treatment alone, 8 per cent of patients with gastric ulcer die. These are probably the extremes—8 per cent and 50 per cent—and the truth lies between the two.

Now the average death-rate for gastroenterostomy or Finney's pyloroplasty, which are the operations most frequently employed in these conditions, is as low in the average at the present day, in the hands of competent surgeons, as five per cent. The Mayos so long ago as 1903[1] averaged a mortality of 7.8 per cent for gastroenterostomy, and of 3.5 per cent for Finney's pyloroplasty; while Robson and Moynihan[2] give a mortality of only 3.2 per cent among their last 218 operations for non-malignant disease of the stomach. Mayo[3] had only one death in his last 81 gastroenterostomies for non-malignant disease of the stomach (1.23 per cent mortality). Among the last forty gastroenterostomies which I have myself performed there has been only one death, or a mortality of 2.5 per cent. It must be remembered, moreover, that the figures for the surgical side of the argument include not only operations done to procure rest to the stomach, but also many operations done on stomachs very extensively diseased—dilated, distorted, or contracted by chronic ulceration; and that the operative mortality is constantly lessening as surgeons become more expert, and as their experience increases.

In regard to the cures, a decision in figures is not so easily reached. Few series of cases have been followed sufficiently long to give us any accurate data; and the figures which are available apply more especially to the results of operations performed upon patients with pyloric stenosis than upon those in whom there is no such obstruction. The figures for the former class of cases will be considered presently, and as such patients are usually more seriously ill than those without pyloric stenosis it is reasonable to conclude that the end results of operations for non-obstructing ulcer are even more satisfactory than are those of operations undertaken for gastrectasis and allied conditions.

The argument, then, for surgical intervention in cases of gastric disease where the indication is rest for the stomach, and where medical measures fail to secure the requisite results, is founded on safe premises, and justifies our conclusion that when medical means fail resort should be had to surgical operation.

Doubtless some medical men will reply that in persistent non-obstructing gastric ulcers, where medical measures have failed, and where operation has been tried, he has known recurrence of symptoms to occur, and hence is skeptical as to the benefits to be derived from operation. Mumford and Stone among others call attention to this fact, and record four such cases subjected to operation for slight degrees of pyloric stenosis. But they go on to point out that the operation done was a simple gastroenterostomy with a long loop, and that symptoms recurred because the technique was faulty. Immediately after the operation the pyloric irritation subsided, because the food was diverted from its former channel into the gastrointestinal anastomosis. But when the pylorus had regained more or less its normal state the food again passed through it, this being the easiest and most natural channel to pursue, with the result that the gastrointestinal anastomosis contracted, and the pylorus again became ulcerated. If in such cases the pylorus had been permanently occluded at the operation, or if Finney's operation had been done, the cure would have been permanent. These are faults which we have learned within the last two years, and we no longer will allow such a series of events to occur. Among my own gastroenterostomies, two suffered from regurgitant vomiting and recurring symptoms. I again opened the abdomens of these patients and tied off the pylorus, with the happiest results.

Now I would not be misunderstood as urging surgical intervention to procure gastric rest in every case of ulcer of

[1]Mayo: *Annals of Surgery*, July, 1903.
[2]Robson and Moynihan: *Loc. cit.*, p. 262.
[3]Mayo: *Journal of the American Medical Association*, 1905, ii, 1211.

the stomach. Acute peptic ulcers are frequently cured by medical means, and by therapeusis founded on the well known physiological laws elaborated by Pawlow. But it is at times very difficult to be certain whether an ulcer of the stomach is acute or chronic. In certain instances, of course, there can be no manner of doubt that the ulcer is acute; but in other cases there may arise symptoms which are quite as acute, yet which nevertheless are due to an exacerbation of chronic ulceration. Naturally, perforation of a gastric ulcer is on all hands acknowledged to be a surgical disease; but in the matter of acute hemorrhage there is still dispute. My own view is that it is pure madness to operate while the bleeding is actually taking place, with any idea of finding the bleeding point and ligating it. Such bleeding is almost invariably venous, and as invariably very successfully checked by medicinal treatment, combined with absolute rest, and the local application of ice. This is the hemorrhage, as Mumford says, which comes as our first intimation that ulcer is present. But the truly alarming hemorrhages, though they are seldom large in amount at any one time, are those which occur in chronic ulceration, and which are dangerous because so often undetected, and because they sap away the life of the patient by unappreciable degrees, maintaining, and even possibly originating, that anemia which is characteristic of the disease. Such occult hemorrhage is of the greatest moment, and investigators who periodically call attention to the subject deserve the surgeon's warmest thanks. When such occult hemorrhage is prolonged, and recurs persistently if without regularity, operation should be done, and a cure is to be expected. When the hemorrhage is greater in amount, gastroenterostomy should also be done, to allow the ulcer to heal. It is useless to attempt to find or excise the ulcer—gastroenterostomy is sufficient. But recurrence of symptoms must be provided against, either by making the gastroenteric anastomosis amply large, and by excising the mucous membrane at the site of the anastomosis, by constricting the pylorus, or by employing Finney's operation of gastro-pyloro-duodenostomy. I have tried the last named procedure in a small number of cases, but not with any notable success. It is but just to add, however, that in the hands of its originator, as well as in those of several other surgeons of experience, it is a method which has been proved to have distinct value in patients such as those now under discussion.

2. Drainage. This is the second object of surgical intervention to which I have alluded. This is indicated in practically every case of pyloric obstruction, a state which is most frequently caused by chronic ulcer. There are very few cases indeed in which the primary gastric hypertrophy which is believed to occur persists long enough or reaches such proportions as to be self-curative. Sooner or later the stomach dilates, and like the dilated bladder in prostatic obstruction, the condition becomes steadily worse. The products of the chronic gastric catarrh, added to the natural secretion of the stomach, and the stagnating ingested food, all tend to continue and to increase the dilatation. We hear at times of an atonic dilatation. I have never myself seen such a condition, and have a very strong suspicion that careful search in such cases would demonstrate the presence of old cicatrices or adhesions, causing a narrowing of the pylorus, and hence producing the gastrectasis.

What does medical treatment offer for the condition of gastric dilatation due to pyloric stenosis? Gastric lavage and a carefully regulated diet may keep some patients in comparative comfort; but proper nourishment is not received; the patients are constantly thirsty; they gradually lose weight. Mumford and Stone[1] traced sixty patients with gastrectasis who had been treated in the Massachusetts General Hospital. They found that only *two* were well, forty-seven were improved, two were unimproved on leaving the hospital, and nine died while in the hospital. The end results were that seven were well, five improved, nineteen unimproved, and twenty-nine had died. Thus the immediate mortality under medical treatment was nearly eight per cent—117 patients in all were under treatment, and nine died in the hospital; while the ultimate mortality was at least 50 per cent—twenty-nine patients out of sixty who were traced were found to be dead, and of those who were not traced it is more than

[1]Mumford and Stone: *Loc. cit.*, p. 83.

probable that the majority were dead. As Mumford sententiously remarks, "dead men are certainly less easily discovered than the living." It is worthy of note that whereas two patients were classed as *well* on leaving the hospital, no more than seven were ultimately found to be well when their histories were traced—surely it is a very poor showing for only five additional patients to regain their normal health in a period of from two to seventeen years. Of the twenty-nine patients who were found to have ultimately died after leaving the hospital, over one-half are known to have died of cancer, the duration of the total illness varying from four to thirty-nine months. In those patients not known to have died of cancer the cause of death was given as "starvation," and this in all probability was caused by carcinoma in a majority of these cases. Mumford and Stone conclude: "Of the *twenty-nine* fatal cases, twenty were *short cases,* ill but a few months after leaving. Nine were *long cases;* and of the long cases four died of cancer soon after coming under observation; two died of cancer several years after being studied at the hospital; and three died of wasting gastric disease other than cancer."

The argument for timely surgical intervention as the best means of preventing carcinoma will occupy us presently, but just now I want to call to your attention again the reasonableness of surgical operation for the relief of gastrectasis and other distortions of the stomach for which drainage is the proper treatment. In this category are included, besides simple gastric dilatation from pyloric stenosis due to ulcer, the various forms of hour-glass constriction of the stomach, and the distortions caused by extraneous adhesions, whether due to gastric ulcers or to biliary or pancreatic inflammations. Gastroptosis I have never observed unassociated with dilatation of the stomach, unless it was in those rare instances of splanchnoptosis in which all the abdominal viscera were prolapsed. When accompanied by gastrectasis it is the latter condition that is responsible for the symptoms, whether the dilatation be caused by kinking of the pylorus through relative shortening of the gastrohepatic ligament, or produced by coincident but independent ulceration. The proper treatment here, as in other cases of gastrectasis, is some form of drainage operation. I do not favor the operation advocated by Beyea—shortening of the lesser omentum—both because of the danger of wounding important nutrient blood-vessels, and also because, though the malposition of the stomach may possibly be relieved, the dilatation is not affected, but may increase and give rise to recurrence of symptoms.

Gastric tetany is a condition whose surgical aspects have been forcibly brought before the profession by Robson and Moynihan. According to these authors dilatation of the stomach is almost invariably the cause, and when this condition is relieved by operation a cure nearly invariably results. I have not myself had any experience with this condition, but in view of the admitted inefficacy of purely medical treatment I would not hesitate to recommend operation to such patients should they come under my care.

As has been already pointed out, the mortality of operation for these conditions averages about five per cent; while under medical treatment the immediate mortality is 18 or 20 per cent, and the permanent cures few and far between. Mumford and Stone have searched recent literature carefully to find an answer to this question of the end results, and conclude that of the cases treated by medical means, and apparently cured (averaging about 80 per cent of the whole), probably one-half do not remain cured, but have relapses of the same disease, or have some new and more serious disease, such as gastrectasis or gastric carcinoma, engrafted upon the previously existing disease. With surgical treatment Mumford's figures are the following: Of seven patients Barling had seven remain cured; of twenty-eight patients Mayo had twenty-seven remain cured, and only one had recurrence of symptoms; of thirty-seven patients Moynihan had twenty-nine (all that were traced) remain cured; and of twenty-eight patients operated on by Robson and Moynihan, all of those traced, twenty in number, were permanently cured. Excluding the two patients already mentioned, who were relieved of regurgitant vomiting by ligature of the pylorus, I have succeeded in tracing thirty of my own patients operated on by gastroenterostomy, and am glad to say that not one of them suffers from gastric symptoms after a period varying from one and one-half to four years.

I think these figures give a fair idea of the surgical practice of to-day—the statistics of a few years ago were not so good; those of this year are better than those of last, and those of next year will be better yet. Surgical treatment allows 95 to 98 per cent of these patients to recover from the operation. Medical measures allow from 70 to 80 per cent to recover from treatment. Surgery permanently cures practically every patient who makes a surgical recovery. Medicine permanently cures only 40 to 50 per cent of its patients. Medical treatment is long and uncertain. Surgical treatment is rapid and sure.

3. The third object of surgical intervention to which I have alluded is the prevention of the development of carcinoma in the stomach. As has been well said, the time to operate to cure gastric carcinoma is while the disease is still in the stage of chronic non-malignant ulceration. I am sure there is no longer any doubt in the minds of most living pathologists that gastric cancer most frequently is developed from a preceding ulceration with chronic irritation of the ulcerating surface. The list of sixty patients traced by Mumford and Stone, to which I have already alluded, and which showed that over one-half of the deaths were caused by carcinomatous disease engrafted upon some previously existing gastric affection, is in itself sufficient evidence on this point, were it impossible to go further. Mayo[1] found a history of ulcer or other disease in 36 per cent of his patients, and clear evidence of cancer development on ulcer in 30 per cent of the last forty pylorectomies and partial gastrectomies. Mumford and Stone[2] also made a personal study of some fifty cases of cancer of the stomach at the Massachusetts General Hospital, and in no less than forty-one of the fifty patients was there "a history either of ulcer or of long-continued digestive disturbance, of which the exact nature could not be ascertained."

If chronic and rebellious cases of gastric indigestion were promptly turned over to the surgeon, and if suitable operations were done on such patients, it is my belief that there would be fewer cases of carcinoma of the stomach observed by physicians.

4. The problem of the surgical treatment of lesions which are already cancerous in nature is one which requires the most careful thought. Medical treatment is here even more helpless in effecting a cure than in the chronic diseases of the stomach which have already been discussed. Has there ever been a case of cancer of the stomach cured with medicine? Is surgery any less helpless? I think the truthful answer may be in the affirmative, although the outlook here is by no means so bright as in non-malignant conditions.

Patients with gastric carcinomata who remain untreated, or (which amounts practically to the same thing as far as cure of the disease is concerned)—or, I repeat, those who are under medical treatment alone, have an average duration of life, according to Mikulicz and Kronlein,[1] of about twelve months from the beginning of the disease. Many writers put it at less. Not only is this the duration of life, but it should not be forgotten that at the end of that time the patients under medical treatment will *all be dead.* If, then, the surgeon can show any permanent cures, and if the average duration of life under surgical treatment is longer, or at least not less than that under medical treatment, the conclusion is surely irresistible that surgical intervention is best for these patients. Now what are the figures—the immediate mortality and the percentage of cures—for radical operations on patients with gastric carcinoma? Mumford and Stone[2] have attempted to solve this problem as have so many others, and I quote their figures, both because they form the most recent compilation and because their conclusions appear to me to be unprejudiced. They analyze 832 cases of partial gastrectomy, by various operators, extending from 1900 to 1904. The average mortality is 31.4 per cent. As these authors state, "In other words, with properly selected cases, the operation is not much more dangerous than an attack of pneumonia;" and they quote the Mayo brothers as reporting last year 13 gastrectomies with only one death—a mortality of less than 8 per cent.

In regard to the ultimate results—the cures—of this formidable disease, after partial gastrectomy, Mumford and Stone find, of ninety-four patients traced from

[1]Mayo: *Loc. cit.*
[2]Mumford and Stone: *Loc. cit.*, p. 201.

[1]Mikulicz and Kronlein: Moynihan, Abdominal Operations, Philadelphia, 1905, 223.
[2]Mumford and Stone: *Loc. cit.*, p. 219.

the clinics of Kronlein and Mikulicz, that 22 per cent—more than one out of every five patients—lived from one to eight years. Not only, then, is it possible to permanently cure a few patients by radical operation, but in the hands of some surgeons the duration of life is very much greater even in patients who have recurrences. According to Moynihan[1] the average duration of life in patients who underwent gastrectomy in the clinics of Kronlein and Mikulicz was from beginning to end of the disease as much as twenty-four to twenty-six months—more than twice as long as the average duration of life without operation.

I recognize the fact that occasionally when a surgeon undertakes an operation for a supposedly benign condition he may happen upon one which is undoubtedly carcinomatous, but one which may not yet be so far advanced as to contraindicate the radical removal of the growth. But these cases are rare; and it so frequently happens that very suspicious-looking indurations melt away and disappear after the simple operation of gastroenterostomy that I should have to be very certain that the growth was really cancerous before I would be willing to undertake its excision. And not only should I have to be thoroughly convinced of its malignancy, but I should also wish to be thoroughly sure that the expectation of life in my patient would be increased by the radical operation—that he would live longer and in greater comfort after a partial gastrectomy than after a gastroenterostomy. Although I have no figures from my own cases to offer you at present, not having traced my patients since operation for malignant disease, I do know that the patients on whom I have done partial gastrectomy for cancer have lived on the average a longer time than have those on whom I have been content to perform gastroenterostomy. Other surgeons, as I have already remarked, have recorded better results from radical operation than from the palliative. Indeed, Mikulicz, Carle and Fantino found that not only was the mortality less after gastrectomy, but the duration of life was longer by ten or twelve months than after gastroenterostomy; and Moynihan is very urgent for radical operation, claiming that, even though the whole of the affected glands cannot be removed, the excision of the foul and sloughing surface from the gastric cavity will very materially benefit the patient's health and prolong his life. As the result of my experience I personally believe that the mortality of gastroenterostomy is but little if any higher than pylorectomy or partial gastrectomy, if the operation is done with despatch and a perfect technique.

But to my mind gastroenterostomy is the treatment of choice for patients with advanced gastric carcinoma; nor do I limit it to cases where pyloric obstruction is present. Even if marked stagnation of food does not exist, there can, I think, be no question that direct drainage of the stomach is beneficial, and that by diverting the chyme from its course over the ulcerating area we check to an appreciable degree not only the pain from the growth but the progress of the malady as well.

If the disease has not extensively involved the stomach, but yet is so far advanced as to contraindicate removal of the growth, I employ the usual operation of posterior gastroenterostomy. If on the other hand the disease has progressed further, so as to considerably debilitate the patient, or if there are extensive adhesions, especially to the pancreas, I do simply an anterior gastroenterostomy with the Murphy button. This is a simpler operation, consumes less time, and gives, I believe, equally good results for such patients, who can scarcely ever anticipate a return to normal diet and active life.

5. Finally, there is the question of operating to induce euthanasia. Can surgery do anything rational to render less miserable the declining days of a patient who is slowly starving to death from an inoperable cancer of the stomach? In my own mind there is no manner of doubt that jejunostomy is frequently an imperative operation. It is true we do but substitute one form of death for another. As Mumford remarks, in another connection, it is but inquiring of our patients whether they will make the journey to Tyburn by the way of Maiden Lane or Piccadilly. But I think there are few patients and possibly fewer surgeons who would not prefer death to come from cachexia rather than from starvation. I believe that the profession in general does not appreciate the degree of alleviation of suffering which these procedures—gas-

[1]Moynihan: Abdominal Operations, p. 223.

trostomy and jejunostomy—afford. They are operations which may be done under local anesthesia if desirable, but as a rule so short a time is required for their performance that a few whiffs of ether will suffice, and will serve merely to stimulate, not depress, the circulation.

In conclusion I desire to say that the problems of the proper treatment of gastric diseases can only be worked out by the physician and surgeon together. Many, very many, cases of chronic gastric indigestion are really a form of surgical disease; and those which do not yield within a reasonable time to rational medical treatment can almost without exception be promptly and permanently cured by surgery. The fact above all others which I have tried to emphasize is that the surgeon is asking to be called earlier into consultation, that he may decide with the aid of his medical colleague not only which are proper cases for surgical treatment, but also at what period of the disease surgical remedies had best be applied. The facts which I have given in regard to the relative mortality under medical and under surgical treatment are not, I think, viewed through rose-colored glasses on the surgeon's nose. I believe they represent the unvarnished truth. Both physician and surgeon are working conscientiously for the best welfare of their patients, and if the surgical side of the question has through this paper acquired greater merit in the minds of my medical confrères, its purpose will have been amply fulfilled.

THE SUBCUTANEOUS INJECTION OF PARAFFIN FOR NASAL AND OTHER DEFORMITIES, AND THE SUBMUCOUS INJECTION FOR ATROPHIC RHINITIS.[1]

By Andrew B. Kirkpatrick, M.D.,
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I must apologize for the length of the title of my paper. I was compelled to sacrifice brevity to comprehensiveness, but my paper will be short, in inverse ratio to the title.

So much has been written on this subject that it would seem gratuitous to tell what paraffin is, its origin, melting point, etc.

My first attempt, or offense, as some of my friends are pleased to call it, at paraffin injection for saddle-back nasal deformity was in March, 1903. In September I exhibited three cases at the Philadelphia County Medical Society, and explained my technique and showed my syringe.

Among pioneers in this field I must mention Dr. Corning, of New York, who experimented with sterile oils in 1892, afterward with melted vaselin. Gersuny, of Vienna, was the first to use paraffin prosthetically. He reported his first case in 1899. It was for cosmetic effect, and was to replace the testes, which had been removed for tubercular disease. The same year with Gersuny came Dr. Heath of St. Paul, and Dr. Lynch of New York, and the next year Dr. Harmon Smith published his investigations. So the history of the paraffin prosthesis covers about five years. Dr. Morton, of San Francisco, published a very interesting and comprehensive article on this subject in *American Medicine* in October, 1903.

In this article referred to a series of microphotographs are given, showing the condition of the paraffin at the end of one, two, three, and four months.

It appears that the injected paraffin acts as a foreign body, and sets up a low grade of inflammation, the paraffin being gradually surrounded by embryonic tissue, which undergoes the usual process of development.

The globules of paraffin are encroached upon by the connective tissue and vessels. At the end of four or five months, according to Dr. Morton, the masses of paraffin are permeated by blood-vessels, and are much reduced in size.

There is a great increase in new tissue —embryonic, connective, and fibrous, a true hyperplasia.

The microphotographs before referred to would seem to prove conclusively that the paraffin gradually disappeared, and is replaced by normal healthy tissue.

Whether it is carried away by the lymphatics, leucocytes, phagocytes, or undergoes some chemic change, is problematical.

Dr. Delmar Ritchie, of Pittsburg, read a very interesting and instructive article on this subject last year at the meeting of

[1] Read before the Northwest Medical Society of Philadelphia.

the Pennsylvania State Medical Society, in which he states that in 1901 a series of investigations upon guinea-pigs and rabbits in the Trudeau Laboratory at Saranac Lake, New York, proved conclusively that under no conditions will sterile paraffin act as an irritant, when introduced into a healthy animal. In one instance "as much as two ounces were introduced into the peritoneal cavity of a rabbit, without the slightest indication of local or constitutional disturbances."

FIG. 1.—Before treatment.

FIG. 2.—No. 1 after treatment.

FIG. 3.—Before treatment.

FIG. 4.—No. 3 after treatment.

Dr. Comstock, of St. Paul, made a most exhaustive and comprehensive study of paraffin work, histologically and pathologically, and his experiments show conclusively that in every case in which he injected animals with paraffin the melting point of which was below the temperature of the body the animals died in two weeks with thrombosis.

FIG. 5.—Before treatment.

FIG. 6.—No. 5 after treatment.

FIG. 7.—Before treatment.

FIG. 8.—No. 7 after treatment.

Downie injected a quantity beneath and into the parenchyma of a malignant breast one week before amputation. This

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research seemed to prove that the new material had displaced the adipose vesicles, and found its way along the trabeculæ of fat-containing cells.

Comstock says: "In paraffin we have a substance that will fill in the spaces of lost tissue, and not remain entirely an encapsulated foreign body, but become a bridge work, and in fact a part of the new tissue."

I use commercial paraffin, sterilized, in which the melting point has been raised by the addition of vaselin to 106° to 112°, according to the condition and location of the deformity to be obliterated. The melting point can be as low as 106°, if the deformity is slight, and only a small quantity is used.

I think it is reasonable to conclude that the higher the melting point the sooner will nature remove it from the system.

In my first paraffin work I used a small glass barrel aspirating syringe. The instrument that I now use was modified by Charles Lentz & Sons, and is all metal. The plunger shaft is fitted with a screw or nut which fixes it, and the plunger is screwed down, forcing the semisolid paraffin out in a fine capillary stream, and is absolutely under the operator's control. Dr. Ritchie's syringe is an improvement on mine in that it works with a ratchet and is largely under control of one hand.

I have performed the operation about twenty-five or thirty times in nasal cases. The patient I show you to-night was operated upon in my office on Saturday, November 4, and to-day is Monday the 6th. As I was out of the city over Sunday she promised to report to an assistant, but failed to do so (Figs. 1 and 2).

In May I straightened her septum, dissected out a dislocated columnar cartilage. While she was under the anesthetic I injected a small amount of paraffin, but was not fully satisfied with the result, and so completed the operation as stated above. She complained of no pain after the operation was completed. As you see there is only a slight redness the size of a pea over the site of the injection. She and her family were quite satisfied with the first result.

I have never had any bad result, though I have seen several cases early in the history of this surgical procedure in which an excessive amount was used, or in which it was injected in a liquid form, and not properly controlled, and the state of the patient was made far worse.

In several instances I have removed paraffin injected by other surgeons. In Case 3 I had a slight superficial slough, and had to remove a small amount of the paraffin. However, this patient had been on a prolonged debauch, had his nose broken several times—the last injury was followed by erysipelas; and besides he had acne rosacea.

I have never seen a case of amaurosis or thrombosis, nor have I had any infection. I try to use every precaution to protect my patients from these accidents. If you will allow the digression from my title, I might remark that some of the varied uses are to obliterate mastoid and other scars and deep wrinkles, as a foundation for artificial eyes, for the development of attenuated mammæ, to fill in the depression above prominent clavicles, in atrophic rhinitis, and *ad infinitum*.

THERAPEUTICS OF LOBAR PNEUMONIA.

BREM contributes a paper on pneumonia to the *Johns Hopkins Hospital Bulletin* for October, 1905, and in closing presents the following summary of the therapeutics of the disease:

1. Elimination of the toxic agent. Internal hydrotherapy.

2. Amelioration of harmful influences: (*a*) Fever—external hydrotherapy; pain—ice-bag and analgesics; restlessness, insomnia, delirium—external hydrotherapy, analgesics, and narcotics. (*b*) Respiratory indications: (1) heroin or morphine every two hours for a respiratory-rate of 36 or greater; (2) oxygen inhalation is probably useless and may be harmful. Circulatory indications: (1) Circulatory sedatives are probably contraindicated, excepting the nitrates, which may be of benefit during early periods of increased cardiac work. (2) Alcohol indicated in alcoholic cases; may be of benefit when there is no circulatory insufficiency. (3) Circulatory stimulants contraindicated, except members of the digitalis series. The indication is low blood-pressure associated with one or more of three conditions, namely, respiratory insufficiency, small urinary output, edema of lungs.

The Therapeutic Gazette

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Leading Articles.

METHODS OF INCREASING AND DIMINISHING THE COAGULABILITY OF THE BLOOD FOR THERAPEUTIC PURPOSES.

One of the most interesting things in connection with the extraordinary advances which are being made in medicine at the present day is the discovery of the reasons for the action of certain remedies which have been known to be advantageous for long periods of time, as the discovery of the malarial organism, which gave us the explanation of the manner in which quinine does good in malarial fever. At present it would seem probable that the good results which follow the administration of the salicylates in rheumatism depend upon the influence of these drugs upon the microörganism producing this disease. A number of other instances of a similar nature might also be cited in which empiricism has at last been founded upon a true scientific basis.

One of the most important fields for experimental investigation during the last twenty years has been the blood, both in its corpuscular elements and its serum. Studies of its corpuscular elements have afforded us valuable aids in diagnosis, and researches upon its serum have provided us with a number of exceedingly valuable therapeutic agents. Among the investigators who have done much to increase our interest in regard to the influence of the blood in the maintenance of health is Dr. Wright, of Netley, England. A number of years ago he showed that the administration of calcium chloride distinctly increased the speed with which blood coagulates, and he suggested that this substance might be employed in cases of hemorrhage which seemed to depend upon a delay in the coagulation process. In a large number of cases in which calcium chloride has been administered with the object of arresting hemorrhage it has failed, either because the case was not suited to the employment of this drug or because the vessels which were bleeding were too large to be controlled by the rapid formation of small clots. On the other hand there can be no doubt that in those cases in which there is delayed coagulation the proper administration of this remedy is advantageous. The fact must be carefully borne in mind that if the drug is administered too freely and for too long a period of time it produces a condition in which coagulation is delayed rather than hastened.

Wright has recently shown that certain individuals seem unable to absorb from the alimentary canal the doses of calcium chloride which are given them, and this may be an explanation of its failure to hasten coagulation in a certain number of instances in which it has been tried.

A number of months ago we called attention to an important research by Wright, in which he showed that the administration of cow's milk, which contains an excess of calcium as compared to human milk, greatly increases the coagulability of the blood, and therefore, in his opinion, distinctly tends to develop a tendency to the formation of thrombi. Indeed, it will be remembered that Wright is convinced that the absolute milk diet frequently administered to typhoid fever patients is capable of causing the development of phlegmasia alba dolens.

Our attention has once more been called

to this very important subject by a most scholarly and interesting communication made by Wright and Paramore to the London *Lancet* of October 14, 1905. After describing a method which they have devised for measuring the content of the blood in calcium and magnesium salts they proceed to record the results which they have obtained from the administration of calcium chloride, calcium lactate, magnesium carbonate, and cow's milk in shortening the period of coagulation. Having proved that these substances do hasten coagulation in the earlier studies to which we have referred, the first point which they have attempted to determine is how soon after the ingestion of each medicinal agent is the coagulability of the blood definitely increased. They find that when calcium chloride is administered the full accelerating effect produced by its use is achieved within the first hour after its administration. When calcium lactate is used increased coagulability may be noted within twenty minutes after the administration of the drug, and the full therapeutic effect is practically achieved in every case within the course of three-quarters of an hour. When magnesium carbonate is employed they find that it also increases the coagulability within the period of an hour, and, finally, that the administration of cow's milk also acts with considerable promptness in this respect, although less rapidly.

The second question which they have attempted to determine is what is the maximum acceleration of coagulation which can be achieved by a single dose of any one of these substances. In regard to calcium chloride the period of coagulation was reduced by its administration to a very extraordinary degree. Thus in one case before the administration of the drug coagulation took place in two minutes and ten seconds, after its use in thirty-five seconds. In another instance before its use the period was two minutes and fifteen seconds, after its use forty-five seconds. In still another the diminution was from two minutes and ten seconds to one minute and fifty seconds. In the case of calcium lactate the diminution in the time of coagulation was practically equally great, and in the case of magnesium carbonate it was quite marked. Thus in one case the speed was increased from two minutes to forty-five seconds, in another instance from one minute and forty seconds to forty-five seconds, and in still another from one minute and five seconds to twenty-five seconds. In the case of cow's milk where the normal coagulation time was one minute and twenty-five seconds, the frequent administration of fairly large quantities of this fluid reduced the coagulation time to forty-five seconds.

The third question which they attempted to determine is whether increased coagulability of the blood is associated with a definite increase in the calcium or magnesium salts in the blood. They find that the answer to this question is in the affirmative. The coagulation increases with the quantity of salts present, and these diminish simultaneously with the return of normal coagulability. Similar results were obtained when calcium lactate was employed. The final question which they sought to determine is, how long is the condition of coagulability maintained in the average case? They found that in three instances the increased coagulability was maintained from five to eight days.

There are a number of other interesting points in connection with this research which we find are worthy of emphasis. First, that a constitutional incapacity, complete or partial, for the absorption of calcium salts may explain repeated attacks of hemorrhage, or serous hemorrhage as represented by urticaria. Again, that the development of urticaria or local hemorrhages after the administration of rhubarb, which contains oxalic acid, or of acid fruits which contain citric, tartaric, and malic acids, is dependent upon the inability of the body to store up a reserve of calcium which can be drawn upon when these acids decalcify the blood.

Thirdly, the hypodermic injection of calcium salts is indicated in cases in which the hemorrhage of urticaria is exceedingly severe, or in which there is reason to believe that the absorption of calcium salts by the alimentary canal is imperfect or absent. When the calcium salt is to be given hypodermically calcium lactate is the one of choice as it is much more soluble (1 to 10 of water) than is calcium chloride, and furthermore does not produce the local irritation of the first named salt.

It is also interesting to note that these experiments of Wright and Paramore,

which show that magnesium carbonate increases the coagulability of the blood, afford a scientific explanation of the well known clinical fact that the administration of this substance in many cases of indigestion with urticaria does good. The result is accomplished not only by the magnesium acting as an antacid in the stomach, but by its absorption and the consequent increase in coagulability of the blood. Again, it does not act by diminishing the acid properties of the blood, but replenishes the blood with those salts which are needful to make it coagulable and viscid. The dose of either calcium lactate or calcium chloride which Wright and Paramore advise is 60 grains, which may be divided into three doses of 20 grains each, administered at equal intervals during twenty-four hours. An increased coagulability having been established by this dose smaller doses must be given with the object of maintaining that coagulability without producing the secondary effect of decreased coagulability which is caused by too free administration of these drugs. The doses of magnesium carbonate which are advisable are identical with those of the calcium salts, and the quantity of milk which seems to be necessary equals about 1½ pints per day of cow's milk to an adult.

Another point of importance which Wright and Paramore emphasize is that in certain cases it may be advisable for the physician to *diminish* the coagulability of the blood, and they advise that this be accomplished by the administration of citric acid. Thus in cases of typhoid fever, when a rigid milk diet has been adhered to, Wright and his colaborers believe that the danger of thrombosis may be much diminished by the use of citric acid. In one case in which it was found that the coagulation time of the blood was one minute and ten seconds, citric acid increased the coagulation time very considerably, so that at the end of six weeks coagulation did not occur until after two minutes and twenty-five seconds. On the other hand, it was found that after citric acid had been administered for many weeks the period of coagulation was shortened, until it became ultimately even shorter than before the drug was administered. So far they have no explanation for this curious occurrence.

H. A. H.

THE TREATMENT OF GENERAL PERITONITIS.

We have read with much interest and profit in the *Medical News* of November 4, 1905, a valuable article by Dr. Andrew J. McCosh upon this subject. As he well points out, there is as much difference of opinion in regard to this matter as was the case ten years ago, both as to the details of operative procedure and also concerning the general principles of treatment. Indeed, it may be said that we have passed through two epochs in regard to this matter, and are part way through the third. The old and somewhat ancient epoch existed prior to our knowledge concerning the relation of microörganisms and intestinal diseases to the general peritoneal cavity, and it was the epoch in which the surgeon was never called upon for relief, and in which the so-called opium treatment held full sway. Then came the epoch in which all cases of peritonitis were claimed to be of a surgical nature, and in which some surgeons were so radical as to assert that all drugs were disadvantageous save perhaps the saline purgatives. The third epoch is the one which is naturally arrived at after the existence of these two dogmatic periods, and represents our views to-day, namely, that most cases of peritonitis should be treated by operative procedure, and that others are unsuitable for operation.

We think that Dr. McCosh has done a very great service in calling attention to this state of the professional mind at the present time, because he represents the typical modern surgeon who is qualified to speak in an authoritative manner in regard to this important point. In the article to which we have drawn attention he points out the fact that with the discovery that the peritoneum is able to deal with a considerable amount of poison and exudate there has come a tendency on the part of some surgeons to be less confident of the invariable necessity for operation, or at least to be less energetic and painstaking in the toilet of the infected peritoneal cavity. But the key-note of his paper, and of the subject in general, is undoubtedly struck when he says that there should be no one rule of treatment in these cases, and that it should vary according to the resisting power of the patient. It is here that the wisdom of

the surgeon will be shown, and it is by the exercise of such wisdom that hopeless cases will not be subjected to the knife, and that other cases, which are not hopeless, can be carried over the critical period so that operation can be resorted to when the patient's general condition is much more favorable for operative interference. Thus, on the one hand, in the case of a perforation of a hollow viscus, when absence of adhesions permits of the outpouring of large amounts of toxic fluid, there is but one appropriate treatment, and that is instant operation, as for example in cases of gastric, duodenal, and typhoid perforation, or those due to a foreign body from the intestine or gall-bladder. A similar rule holds true in cases of peritonitis due to strangulation. The great majority of cases of general septic peritonitis are, however, due to appendicitis, and here the state of the patient must receive careful study. In young persons who seem to be suffering from a hopeless condition recovery will sometimes occur be the treatment what it may, while elderly persons whose vital organs are impaired will usually die.

After a careful consideration of the subject McCosh divides these patients into several classes: In the first class he puts those who are in a desperate or moribund condition, with a small, feeble pulse varying from 130 to 140, with a typical peritoneal facies, constant vomiting, enormous distention of the belly, rapid respiration, dusky extremities, and a semi-gangrenous odor emanating from the patient's body. These patients are in a practically hopeless condition; they are bound to die within twenty-four hours, and operation only hastens the fatal result. In the second class of cases, in which all these symptoms are much more moderate, although the prognosis is in the large proportion hopeless, the percentage of recoveries will be from 30 to 60, or even 80, if operation is performed at once. But he points out that there are a certain number of surgeons who maintain that if operation is temporarily postponed even better results can be obtained, and he makes the important assertion that a few years ago he belonged to the first of these classes, namely, those who advised immediate operation, but at the present time he classes himself with those surgeons who would carefully choose operation for certain cases and reject it for others. The reason he has come to these conclusions is that he has been agreeably surprised to see patients, whom formerly he would have thought could have been saved only by immediate operation, pass through the critical stages of the disease when treated by absolute starvation, gastric lavage, etc.

It is to be distinctly understood that McCosh does not recommend non-operative treatment in the majority of cases, but only in a certain proportion of cases. When the peritonitis is due to a perforation nearly all require operation. It is in the cases due to an appendicitis that he insists that a most careful selection should be made. Thus be believes that the chances for recovery for elderly patients, especially if they have led dissipated lives, are diminished in peritonitis due to appendicitis if immediate operation is resorted to, but that young patients should be subjected to immediate operation since they survive the operation, while the others usually die. Even in the latter class, however, conditions may arise which make it wise to postpone operative procedure.

The remainder of Dr. McCosh's paper deals almost entirely with the operative technique which he thinks is proper, and as this editorial is written by the editor who is in charge of general therapeutics and not by the surgical editor, we do not give further consideration to his views, which can be obtained in the periodical which we have quoted.

The important point in connection with the subject which we wish to emphasize is one which holds true in regard to almost every method of treatment which may be suggested for the relief of any serious malady, namely, that all persons suffering from a given malady cannot be successfully treated in a given way, and that the skill of the physician and surgeon lies, as Dr. McCosh points out, in selecting his cases. It may be truly said at the present time that one of the chief evils which threatens rational therapy is the attempt upon the part of the profession to treat cases by routine measures. The patient pays for and has a right to expect, not a plan of treatment dogmatically asserted to be correct for every case, but has a claim upon the thought, diagnostic and prognostic skill of his medical and

surgical advisers. In the same way that we may consider digitalis the most valuable drug that we possess for most cases of valvular disease with ruptured compensation, so can we also consider immediate operation as the best plan of treatment for most cases of peritonitis, but every one of experience knows that occasionally digitalis is not the best drug, and it is becoming increasingly evident that in every case of peritonitis immediate operation is not the best remedy.

We would not for a moment be classed with those who would seek to diminish the very great importance of operative interference in these cases, but from practical experience we have found that the modified, but somewhat old-fashioned, opium treatment combined with starvation and rectal injections of normal salt solution in certain cases produce excellent results. In cases where first-rate surgical skill cannot be obtained, these measures will probably give better results in general than will operative interference by those who have not had the opportunity to become thoroughly trained abdominal surgeons. H. A. H.

SYMPTOMATIC PRESCRIBING.

There can be no doubt that in many instances it is the function of the physician to administer remedies quite as much for the purpose of relieving symptoms as with the object of removing the causes which produce them. In some instances the symptoms are, for the time being, of more importance than their provoking causes, and in other instances they are of such great importance to the patient that they demand attention, although the physician may realize that the symptoms are, after all, a very small part of the condition with which he has to deal. In the past there has been a tendency on the part of the more scientific members of the profession, in their endeavors to discover the causes of disease, to resort to preventive and curative measures which have not produced much impression upon the mind of the laity, which is not trained to consider the underlying causes of an illness. On the other hand, those practitioners who have been wont to call themselves "homeopathists" have gone to the other extreme, and have founded a method of treatment which depends almost entirely upon the relief of symptoms with little regard to their underlying cause. This fact has been an aid, in that it produced a favorable impression upon the mind of the patient, but at the same time it has exercised an inhibitory influence upon any tendency which these practitioners might develop to investigate the causes of disease.

At the present time the best type of regular physician is one who is willing to employ any remedy which has rational reasons for its existence, be its source what it may, provided that it proves itself capable of producing the results which logical deduction would indicate, and with increased training the better type of regular physician endeavors to relieve symptoms which are annoying his patient at the same time that he modifies, if possible, the pathological state which underlies these conditions.

A solely symptomatic treatment, while seemingly correct, is both theoretically and practically incorrect, and we are glad to read an interesting paper in the *Hahnemannian Monthly* for October, 1905, in which Dr. Snader, under the heading of "The Passing of the Pure Symptomatological Prescriber," points out that the day has passed when it is proper to prescribe on a purely symptomatic basis, and further, that the graduate of the Homeopathic School, who attempts to practice after having his imagination fired by the reported astounding attainments following the choice of remedies, from the symptomatic standpoint, soon finds that "all is not gold though it glitters," and changes from being a therapeutic optimist to a therapeutic nihilist. As he well points out, the advances which have been made in diagnosis, and in a host of directions in therapeutics, have of necessity materially modified the viewpoint held by therapeutists a few years ago, and he expresses the hope that the homeopathist "has not remained in a state of intellectual catalepsy during all this time," but recognizes that many diseases heretofore treated by drugs must be referred to the surgeon, and that others do not need medicine at all. He also has learned that the application of the so-called symptomatic method of prescribing for the sick is exceedingly difficult to accomplish, and he no longer ignores diagnosis in his prescription.

It seems to us that this article of Dr. Snader is a proper recognition of the manifest change which has been taking place in the ranks of our homeopathic brethren for many years, and also is a step toward removing the barriers which have heretofore existed between regular and homeopathic practitioners. If the latter practitioners still adhering to the necessity of treating symptoms will make careful investigations into the etiology and pathology of disease, their methods of treatment will not differ, and indeed to-day they practically do not differ very materially in many respects from the methods employed by the older school. With this endeavor to study their patients from a scientific standpoint, they will escape from the most serious charge which can be urged against them as a body, a charge once made by one of their own number, namely, that they have failed to produce anything which adds materially to a clear scientific conception of disease processes.

It is quite a remarkable thing that so many homeopaths have the ability to develop a large practice and do not exercise an ability to make original investigations and contributions to scientific medical literature. So far as we know not a single important investigation in any realm of medicine has ever been published from this body of the profession, although their contributions to the symptomatic therapy of disease are, of course, very voluminous.

Those of the homeopathic profession who know the writer of this editorial also know that some of his warmest friends belong to this sect in medicine, and will appreciate the fact that under no circumstances can he be considered unfriendly to them, but we believe that Dr. Snader has hit the nail on the head, and we hope that many of his colleagues will read and profit by his remarks. H. A. H.

THE PROPER DIET IN ACUTE NEPHRITIS.

We have repeatedly called attention in the editorial columns of the GAZETTE to the fact that in a large proportion of cases it is not as necessary, as it was at one time thought to be, to give a very limited nitrogenous diet in the treatment of acute and chronic nephritis. We have pointed out that the red meats are no more deleterious than the white meats, and that it is often a mistake to entirely deprive a patient of these strength-giving articles of diet. We have been much interested therefore in an article by Dr. Morse contributed to the current issue of *International Clinics,* in which he deals with this important question, and in which he agrees with us that the strict diet, at one time largely adhered to, has not the scientific basis which it once was supposed to possess. He points out the important fact that the kidneys do not secrete all substances with equal facility. Indeed, some of them are separated from the blood and eliminated in the urine with great difficulty. A knowledge of these facts is therefore of more importance in arranging a dietary than is the exclusion of any one article of food because it contains a large amount of albumen. The most important of the substances which are excreted with difficulty are urea, creatinin, phosphates, and, in certain diseased conditions, water. It is quite true that most of the urea is derived from the proteids of the food, particularly if the food consists in large part of meat and eggs. It is also true, however, that milk contains a large amount of proteid, and for this reason is not the harmless food in cases of nephritis which it has been thought to be.

As we have emphasized on a previous occasion, milk alone is not the best diet for a nephritic, for in addition to its containing a large amount of proteid, it deluges the system with fluid if a sufficient quantity of milk is taken to provide the body with the necessary number of calories. It is of value if used in moderation as part of the diet, but not as a sole diet. To illustrate this in another way, Morse points out that a child of eight years requires nearly two quarts of milk a day to provide it with a little over 1325 calories, which are the smallest number upon which it can exist in a healthy state. Such a quantity of milk makes calls upon the kidneys which these organs are unable to meet in many cases of disease, since the quantity of water needed by the child of eight years is about one-half that provided by this quantity of milk. Of course, the presence of a normal quantity of cream adds to the caloric value of the milk, and in some instances it may be pos-

sible to fortify the milk by adding cream to it so as to increase its nutritive value without increasing the amount of water ingested. For this reason it is wise to give these patients butter, sugar, cereals, and bread in addition, and Morse provides us with the following interesting statement in regard to the relative weight and nutritive value of these articles: Thus, a slice of bread four inches square and three-eighths of an inch in thickness weighs about an ounce, and contains about 75 calories, or heat units. A tablespoonful of boiled rolled oats weighs about an ounce and contains nearly 20 calories; four rounded teaspoonfuls of granulated sugar about equal an ounce and contain 150 calories. A piece of butter 1½ inches square and ¾ of an inch thick contains 225 calories, and an ounce of grapes represents a little more than 20 calories. This being the case it is easy to calculate what the diet should be for a child or an adult: a child of twelve needing about 1600 calories and an adult from 2500 to 3000 calories a day.

There is another reason why milk is not as valuable an article of diet in these cases as has been thought, namely, that it contains a considerable quantity of phosphoric acid. This objection can, however, be overcome by giving some calcium carbonate with the food, which will prevent the passage of most of the phosphoric acid through the kidneys, and cause it to be excreted by the intestinal tract. About 30 to 60 grains of calcium carbonate a day is the quantity required.

There is one set of food preparations, often prepared for the sick, which ought not to be employed in these cases, namely, meat extracts and broths. They possess little nutritive value and contain an excess of creatinin which must be eliminated by the kidneys. This is a substance which is absent in vegetables, and present in eggs and milk in very small quantity.

In regard to the value of diaphoretics when they seem to be needed in cases of nephritis Dr. Morse believes that but little urea is eliminated by the skin, and that therefore hot baths, and drugs which increase secretion by the sweat glands, are of comparatively little value, although poultices applied over the kidneys may do good by relieving congestion of these organs. H. A. H.

CANCER OF THE TONGUE IN WOMEN.

It is interesting to note that Piquantin (*Thèse de Paris*) has been able to collect 155 instances of cancer of the tongue of women. The experience of every surgeon convinces him that against cancer in this region women are comparatively immune. Roux gives the proportion as 1 to 5. It is probably less than this. It is of course theoretically possible that there may be a partial sex immunity, or that women subject to cancer are more prone to develop this lesion in organs other than the tongue. The weight of evidence is in favor of the development of cancer upon an area of chronic inflammation. Such areas are much less common in women than in men. The use of tobacco is the commonest cause of chronic glossitis; after this the irritation incident to a decayed and ragged tooth; and after this, although possibly ranking equally as an etiological factor, the devitalization of tissues incident to syphilis. Women are universally more careful as to the cleanliness of the mouth than men. The habitual use of tobacco among them is the exception rather than rule, and syphilis is much less common in women than in men.

The therapeutic indication in the prevention of cancer of the tongue lies in at most the moderate use of tobacco, the care of the teeth, and the immediate ablation of every chronic inflammatory lesion which does not yield promptly to specific or topical treatment. The removal of inflammatory lesions in the precancerous stage can be accomplished safely under local anesthesia, and even after extensive operations there can be acquired by practice an articulation so distinct as to give no suspicion of mutilation of the tongue. It is certainly true that the extensive and destructive cancers at one time common enough in clinics are at present not often seen, and there is reason to hope that with the general adoption of the principle of prompt operation this fatal malady may become almost a surgical curiosity. Indeed there seems no reason for cancer in an accessible region reaching such a stage of development as to afford an unfavorable prognosis after operation.

From the practical standpoint the rad-

ical treatment should be adopted long before a positive diagnosis can be formulated.

LYMPHATIC AND HEPATIC INFECTIONS SECONDARY TO APPENDICITIS.

It will be remembered that some years ago Munro contributed an admirable paper abstracted by the THERAPEUTIC GAZETTE pointing out the comparative frequency of postperitoneal lymphatic infections following appendicitis, and showing how these conditions may be diagnosed and safely and efficiently treated. He has offered a further contribution to the subject of secondary infections in conjunction with hepatic affections, basing his study on a general review of literature and a personal experience of thirty-nine cases.

Perhaps one of the most striking points to which Munro calls attention, and one the importance of which has not been sufficiently accentuated in literature, is the fact that the milder or so-called latent forms of appendicial inflammation may start the gravest hepatic infections.

Of the thirty-nine cases studied, fifteen were undoubtedly portal infections, two were instances of subphrenic and portal infection, five were subphrenic abscesses, and fourteen were cases of retroperitoneal lymphangitis.

Subphrenic abscess may develop either through the lymphatics or by direct invasion, the pus traveling along the posterior cellular spaces. In the latter case the abscess will not occupy the whole of the diaphragmatic dome, since it does not readily strip the peritoneum from the diaphragm, but rather breaks through it, forming collections of pus above the upper surface of the liver. Left-sided abscesses are probably the remains of a general purulent peritonitis. Secondary to subphrenic abscess, pulmonary infection is likely to develop; indeed, the direction of rupture is commonly upward.

As to portal infections Munro holds that appendicitis is the most frequent source of typical hepatic abscesses. These are often associated with a recognizable degree of lymphangitis. Infection in either the left or right lobe may take place, but is usually more pronounced in the right.

As to the time of formation of pus it varies greatly, but may follow by a considerable interval the period when reasons for apprehending a mesenteric phlebitis have passed. The liver infection may take place immediately with the onset of infection of the appendix, or may not appear for weeks or months, long after the evidences of the appendicitis have subsided. Young adults are usually affected. According to Musser children below fifteen are entirely exempt, though Munro records a single case in a boy of eleven. Hepatic abscesses are estimated as being present in five to ten per cent of cases of appendicitis.

The prognosis is somewhat grave in both lymphatic and hepatic affections. The lumbar and subdiaphragmatic phlegmons, if drained early and thoroughly, heal kindly, though when the process has advanced to the subphrenic space the mortality is placed at 50 per cent. This doubtless because of lateness of operation. In hepatic infection the diagnosis is extremely grave, since these abscesses exhibit a tendency to assume the miliary type. They do not always invade all the lobes, nor even the entire area of one lobe. Small abscesses tend to coalesce, forming large cavities. Occasionally these cases recover spontaneously. In portal pyelophlebitis there is usually pronounced jaundice; chills develop early; there is pain in the hypochondrium, and this is regarded as one of the most characteristic symptoms; tenderness on palpation, demonstrable liver enlargement, often rigidity of the overlying muscles, and incidentally vomiting and dyspnea. The temperature is extremely irregular and septic in type. At times friction rubs can be heard, and there is always rapid emaciation. Gastrointestinal symptoms are common. The *x*-ray is sometimes of service.

Aside from the fact that Munro calls attention to comparatively common and often fatal complications of appendicitis which in their development are too often not recognized, he advances a powerful argument for early operation, since by this the lymphatic and hepatic infections will in the great majority of cases be avoided. He calls attention to the fact that the type of hepatic infection does not depend upon the gravity of the originating appendicitis, and that the most important clue in making a diagnosis is the recognition of the causative appendicitis.

Reports on Therapeutic Progress

THE AFTER-TREATMENT OF DIPHTHERIA.

In a paper contributed to the *Journal of the American Medical Association* of October 21, 1905, WHITE tells us that the after-treatment of this disease consists in a sufficient period of rest in bed, and then in watching the effect of mild exercise on the heart, for several months at least, and grading it to meet individual requirements. Tonic drugs, such as strychnine and iron, are occasionally useful.

How rigidly the rest cure must be enforced depends entirely on the individual case. It was found last year in a study of cases in the hospital that it was not necessary to keep all patients in bed who had cardiac murmurs and a pulse which was slightly irregular and somewhat increased in rate. After four or five weeks of rest in bed the cases of moderate severity experienced no ill effects from being allowed to sit up for short and progressively longer intervals, if the heart was carefully watched; frequently the heart's action seemed to be improved by this change.

It has also been the case that many mild cases after leaving the hospital with murmurs and slight cardiac enlargement and irregularity became entirely well in a month or two without special care. The writer believes it would be a mistake to invariably keep these children at home and put them to bed, but overexertion should be carefully guarded against.

The writer also believes that much of the cardiac dilatation which was often seen in the first few weeks after leaving the hospital could have been avoided by more intelligent restraint of these children at home. Even the milder cases should be carefully watched, and whatever causes shortness of breath, pallor or fatigue, or affects the heart unfavorably by notably increasing the pulse-rate, causing irregularity or any increase in the cardiac area, should at once be stopped, whether it consists of running, walking, playing, or even in simply being out of bed. The heart must be given abundant opportunity to rest and recover its normal function. This is the only conservative treatment and the only way to avoid permanent damage to the heart in some instances.

All the severe cases require rest in bed and careful watching of the heart for months or years afterward.

White concludes that:

1. The cardiac disturbance after diphtheria usually presents the picture of a mitral insufficiency with irregular heart action and few symptoms. Occasional cases have rapid pulse or cardiac irregularity without any other signs.

2. Moderate disturbance of the heart is very common after diphtheria, and in a large number of cases persists from two to six months after the original illness.

3. In many cases the cardiac lesion does not clear up in the first half year, but lasts much longer; some ultimately recover; others probably do not. The duration of the heart trouble is usually in proportion to the severity of the original illness.

4. The fact that children often have few heart symptoms after diphtheria must not mislead us as to the importance of the injury to the heart.

5. Cardiac disturbance of long duration following diphtheria may be entirely recovered from. It is not necessary to give up hope of recovery in individual long cases.

6. The treatment of this condition consists in a sufficient period of rest in bed, and then in watching the effects of mild exercise on the heart for several months at least and grading it to meet individual requirements.

RHEUMATIC POISON AND ITS TREATMENT.

In the *New York Medical Journal* of September 30, 1905, SATTERLEE says there is a group of remedies, which experience has taught the author entirely to exclude from the treatment of gout and rheumatism, comprised of salicylic acid, salicin, and the salicylates, which have been, and still are, relied upon by many physicians in their treatment of these diseases. It is true that salicylates in acute cases may quell an attack by a prompt relief of the fever and pain, but such antipyretic and analgesic action is at the expense of the heart, and a relapse into all the symptoms occurs very soon, indicating that the cause of the trouble

in the system has not been reached, but only a temporary improvement of symptoms, while the case passes on to a chronic condition, thus increasing the duration of the disease, while not aiding the elimination of the rheumatic poison, as the drugs do not increase the amount of nitrogenous excretion.

It is well known also that salicylic acid and the salicylates not only depress the heart, destroy the appetite, and interfere with digestion, but sometimes produce vertigo, ringing in the ears, delirium, and certain hemorrhagic conditions, such as epistaxis, bleeding from the gums, hematuria, and retinal hemorrhage. All these symptoms the author has observed as a result of the use of these remedies, and he protests against adding the poison of salicylism, even in its mildest form, to the condition of a patient who is already poisoned by nitrogenous waste, which alone has so impaired cardiac action, digestion, and elimination that we should first relieve these conditions and not add to them by giving another poison which is not curative, but can only give at best temporary antipyretic and analgesic relief. Finally, we must conclude that the use of salicylates does more harm than good, as they destroy red blood-corpuscles, thus making the patient more anemic.

Passing over a host of remedies that have been advocated and used for many years in the treatment of rheumatic affections, and it appears to the writer to be without any real knowledge of the disease or chemical reason for their use, we come to the alkaline treatment, which is almost as old as medicine itself, but which during the last forty years has been revived in such an improved form that we not only have a very successful method of treatment, but good reasons why it is the best that can be adopted. Careful examinations of the patient's urine should be made when the case comes under observation and frequently during the treatment, and whereas a total acidity of 6 to 12 per cent is generally first noticed, during the course of the treatment the reaction of the urine should come down to as near a neutral condition as possible. This can be accomplished by giving such alkalies as the benzoates, carbonates, bicarbonates, phosphates, bromides, acetates, and hydrates of sodium, potassium, lithium, ammonium, and strontium. The author prefers to call these alkaline salts the bland alkalies, as they can be taken in frequent and sometimes large doses without disturbing the normal action of any organ or preventing the increased action necessary to further elimination. On the contrary, they improve the power of digestion and increase assimilation. It is better to combine several of these alkalies in one dose with aromatics and to administer them with four to eight ounces of water. For example: Lithium benzoate, 1 to 2 grains; sodium bromide, 3 to 6 grains; pure potassium carbonate, 5 to 10 grains; sodium phosphate, 10 to 20 grains; potassium acetate, 30 to 60 grains; with 2 to 4 drachms of equal parts of syrup of ginger and peppermint water; commencing with the smaller dose and increasing to the larger one, in a half-tumbler or tumbler of water every four to six hours, after eating.

When one alkali is used the following prescription will serve as an example: Liquor potassæ, 10 drachms and 40 grains; infusion of buchu, 10 per cent, 8 drachms; formalin, 5 drops. A teaspoonful of this mixture in a half-tumbler of water after food gives ten minims of liquor potassæ, or half a grain of caustic potash, in each dose.

One more illustration of a powerful, yet bland, alkaline mixture: A saturated solution of lithium oxide 1 drachm, potassium and sodium tartrate 7 grains, flavored with some aromatic oil, and taken in a full tumbler of water three times a day after meals, gives about a grain and a quarter of lithium hydroxide to a dose. This strong alkali will not disturb either digestion or appetite. In children, powders containing lithium carbonate ½ to 1 grain, sodium bicarbonate 10 to 20 grains, in water, or carbonic acid water, frequently given, act most favorably.

The author does not favor the use of potassium iodide, or any of the iodides of the alkaline metals, as their action is not bland in full doses, and thus the remedy cannot be pushed to the required point of alkaline saturation of the system. From the beginning of the treatment he uses an alkaline mixture to stimulate the action of the liver and bowels, which contains in each dose 20 to

40 grains of sodium hyposulphate, 20 to 40 drops of glycerin, and 100 to 200 drops of cinnamon water. This makes a dose of one to four drachms, to be taken every morning before any food, and at night if required. In severe cases the larger dose may be given three times a day with excellent result. In cases where an analgesic is required, the author prefers one which does not depress the heart action.

When the acute symptoms are past, tonics, such as iron, quinine, strychnine, and arsenic, should be given in gradually increasing quantities until full doses are administered, while special symptoms are cared for as in any chronic disease. In the severer forms of neuralgia, such as that affecting the fifth nerve and sciatica, the author has had excellent results from hypodermic injections along the course of the affected nerve of lithium hydrate solution with a minute quantity of carbolic acid.

THE EMPLOYMENT OF CITRATE OF SODIUM IN INFANT FEEDING.

Dr. Poynton has brought forward in a paper published in the *Medical Press* of October 11, 1905, the results of another year's experience of a method of his infant feeding in which sodium citrate is added to cow's milk. In his first contribution, published in the *Lancet,* May, 1904, he pointed out the earlier work of Arthur and Pages, and A. E. Wright, to the latter of whom he is indebted for the suggestion.

The principle of the application of this method is simple, and consists essentially in adding to cow's milk citrate of sodium in the proportion of one or two grains to the ounce of milk.

If an ounce of milk is taken, and to it is added a minute quantity of hydrochloric acid, sufficient rennet, and to that two grains of citrate of soda, and it is then placed in an incubator at body temperature, a fine loose clot will be formed—a clot very different from the firm, tenacious clot that is formed when the citrate of soda is not added.

The explanation of this difference is disputed. The author has been informed by competent chemists that the acid caseinogen combines with the sodium of the sodium citrate to form a sodium caseinogen, which is of lower molecular weight than calcium caseinogen, the usual compound that is formed in milk curdling. The calcium thus combines with the citric acid to form calcium citrate, which was gradually absorbed into the system, being much diluted by the stomach contents.

On the other hand, other chemists had denied the validity of this, and some held that citrate of sodium had no more influence in altering the milk than such salts as sodium bicarbonate. With this conclusion Dr. Poynton does not agree. He has tested in the laboratory sodium bicarbonate, citrate of potash, and salicylate of soda, and has not seen with these such an alteration in the milk clot as he has observed with citrate of soda. He has planned a simple and eminently practical method of using this milk, and now uses it largely in the out-patient department at the Hospital for Sick Children, Great Ormond Street.

Citrate of sodium is very soluble in water, to the extent, in fact, of twenty grains to the drachm. Accordingly it is dispensed in water, with a drop or two of spirits of chloroform added. The object of this dilute chloroform is to prevent the tendency that dilute solutions of salts show to develop a slight moldy growth in them.

If the child requires, for example, three ounces of milk at each feed, and the physician is giving two grains to the ounce of citrate of soda, the prescription would be six grains of citrate of soda in a drachm of water, to be added to each feed. If larger feeds are taken and more citrate is needed, the same amount of water would be sufficient, for, as above stated, citrate of sodium is very soluble.

There is one little point about this method simple enough in itself, but not infrequently neglected: when the amount of milk is increased the citrate of sodium must also be increased in proper proportion. Dr. Poynton uses this treatment for weaning healthy children where the mother's milk fails, for milk dyspepsia, and for giving milk in a more concentrated form to babies. It is remarkable how dilute the milk that is given to children might be, and how long this dilution may be persisted with. Not only this, but where there has been milk dyspepsia he has known children to be kept on barley water alone, even for months! If

citrated milk is well taken, regardless of the age of the child, he steadily pushes up the strength of the milk, increasing the citrate of sodium in due proportion, until at least two parts of milk are given to one of water. When once this point has been reached, and the condition is satisfactory, the citrate of sodium can be gradually diminished.

This salt is not nasty to the taste, and does not materially affect the reaction of the milk—two great advantages in its use; and, moreover, it is very cheap. One difficulty may arise, and this is constipation, but it can be easily put right by appropriate treatment. His experience of the method is now considerable, for he has used it steadily for about two years. Each child is weighed every week, and the amount of milk and citrate revised in this way. A routine method of procedure is obtained which is a great advantage to the physician and patient. This method does not prove invariably successful, and it is not pretended that it can be so. It deals with the curd of milk, and as is well known it may be the fat and not the curd at fault; or, again, cow's milk may be quite impossible for some children, and its use has then to be abandoned. Nevertheless, as a routine and cheap method, in the writer's opinion, the employment of citrate of sodium is really valuable.

SODIUM GLYCOCHOLATE IN DISEASES OF THE LIVER.

RICHARDSON tells us in the *New York Medical Journal* of September 30, 1905, that glycocholate of sodium is indicated in all diseases in which toxemia is a factor, and, with few exceptions, where hepatic insufficiency exists. In many cases of malnutrition, from want of proper absorption of fats, it will materially aid in building up a patient. Above all it is indicated in hepatic colic and gall-stones—in the former it is almost a specific; and in chronic constipation combined with the "purgative habit" it is of great value. The dosage is about 5 grains three times a day, though as much as 15 grains may be given without producing nausea. As the action of the drug is cumulative, owing to its resorption from the intestine, it is not necessary to keep up the full dose for any great length of time. In hepatic colic it is advisable to continue the administration for some months. The patient should take about four drachms a month, regularly, as a prophylactic. In all forms of hepatic insufficiency sodium glycocholate is indicated as a hepatic stimulant in conjunction with other treatment. In arterial sclerosis, in conjunction with the administration of the inorganic salts of the plasma in their proper percentage, it dissolves the cholesterin in the atheromatous deposits, while the salts mentioned tend to dissolve and to prevent the deposit of the calcium salts. In diabetics, when increased absorption of fats is necessary to replace the loss of carbohydrate, and in tuberculosis, in which fat hunger is a pronounced symptom, Ruosel alleging the fat hunger is an etiological factor, sodium glycocholate is indicated.

THE MEDICAL STUDENT AND ALCOHOL.

In an interesting address delivered by CRICHTON-BROWNE before the class at Charing Cross Hospital, and reported in the London *Lancet* of October 7, 1905, he has this to say in regard to medical students and alcohol:

The mention of stimulants suggested to the author that he might in his monitorial capacity venture to say a word about alcohol in connection with efficiency. The writer does not suppose for one moment that in speaking of it there could be any propriety in referring to alcohol in its ethical relations. The bibulous medical student is a creature of the past. If drinking songs are still heard at friendly gatherings they are but old ballads commemorative of a kind of conviviality that is no more. The medical student of the period is not the midnight reveler described by novelists of a bygone generation, but a staid and self-respecting gentleman, effervescent at times, as youth always is, but never rowdy. It is not against the vulgar use of alcohol that he has to be warned; of the evils he is cognizant in an especial degree. No; it is to the alleged use of alcohol that his attention should be drawn, to the question which still agitates our profession whether alcohol is a wholesome article of diet, and in moderation harmless to the brain-worker. The author does not enter on that large

and very thorny question in his paper further than to say that he is not of those who denounce alcohol up hill and down dale, and give vent to well-meant but sometimes extravagant diatribes against it, an admission which will add weight to his opinion that the medical student had best avoid alcohol altogether.

Whatever our views about alcohol at large may be, the writer thinks we are all agreed that in the growth period, where that is normal, it is not wanted, and that at epochs of rapid cerebral adolescence the taste for alcohol declares itself. In the schoolboy it does not exist, and if he indulges in alcohol at all it is from bravado or in mimicry. It is when the emotional life is opening up, when self-consciousness grows keen, when the craving for social enlargement is experienced, that the exhilaration and confidence and expansive friendliness that alcohol yields are appreciated and found helpful. Then it is, when so many habits are formed, that a habit of some degree of dependence on alcohol may be contracted, and it is a noteworthy fact that in nearly 90 per cent of cases of confirmed inebriety the addiction to drink began between fifteen and twenty-five years of age. That is the danger period, and little apprehension need be felt as to the future career as regards sobriety of any man who has voluntarily abstained from alcohol till twenty-five or even twenty-one years of age. It is much to be wished that there should grow up one of those conventional understandings which are almost more binding than legal enactments, that it is "bad form" for a youth to indulge in alcohol till he has attained his majority.

But beyond the general impulse to alcoholic excitation and other strong sensations characteristic of that spell of life when equilibrium is disturbed, during the transition from boyhood to manhood, the medical student has then a special temptation to resort to alcohol in the calls made upon him for severe and sometimes overstraining mental exertion. He has a heavy load to carry against time and up some very steep hills, and the temporary support and relief which alcohol gives in such circumstances are grateful and not unlikely to establish a habit. For alcohol in moderation does afford temporary support and relief in such circumstances, and no physiological refinements can get rid of the fact, and the judicious policy is not to dispute it, but to insist on the other fact that the support and relief obtained are too dearly purchased. Alcohol, let the fanatics say what they may, is a cerebral stimulant and has perhaps played no unimportant part in human progress, but it is a stimulant that is hazardous when the trophic processes in the cerebrum are already accelerated in natural maturation. It is a whip to the brain and quickens its paces for a time, but it often leaves wheals and inordinate fatigue behind it, and so brain-workers, in early life at any rate, should eschew it, or only partake of it in the most guarded manner. It is a treacherous familiar that strengthens its hold on its victim, seriously aggravating the exhaustion that it in the first instance alleviates, and setting up a state of pathological unrest that it is alone adequate to soothe. It is upon fine and susceptible natures that its hurtful influence is most strongly exerted, and thus it is that brain-workers often succumb to it. Having regard to the partial and transient nature of the assistance which it affords and the risks attending its employment, it seems to the author that the medical student, aiming at efficiency, does well to place it, in all its guises, from the homely stout to the ethereal champagne, on his *index expurgatorius*.

THE TREATMENT OF PNEUMONIA IN CHILDREN.

ACKER writes in the *American Journal of Obstetrics* for October, 1905, to the effect that a patient with this disease, as those suffering from other diseases of the lungs, should have a large amount of fresh air. Many (this includes some physicians) appear to consider it a sin to allow any fresh air in the sick-room, but think that the little one must be kept in a hot, close room with woolen goods or cotton jacket about the chest. In a case in which the author was a consultant last winter, the infant was in a room 15 by 17 feet. There were four persons present, and a large gas stove helped to heat the room. The temperature was about 80° F. and the windows were closed. The little patient was enveloped in heavy clothing. There was marked

respiratory dyspnea and cyanosis. The child was dying for want of fresh air. The physician in charge was a capable man, and he explained to the author that it was impossible to get the parents to observe the proper hygienic measures.

The diet is of the greatest importance, for the digestive organs must be kept in good condition. If the temperature of the child is high, sponging with cool or tepid water will allay the nervous symptoms and promote rest. Small doses of the sweet spirit of nitre or solution of acetate of ammonia (if neutral) will have a good effect on the fever, but the coal-tar preparations must not be used for this purpose. Expectorant medicines are not of any, or are of little, value in the disease, and often impair the digestion. The carbonate of ammonium and aromatic spirits of ammonia are at times useful as respiratory stimulants. Alcohol and strychnine will be necessary in many cases when the vital forces are on the wane. If the cough is harsh and dry, the air should be kept in a moist state, and the croup kettle (with compound tincture of benzoin in the water) is admirable for this purpose. Unless the cough is very troublesome it does not require treatment, and certainly one must be cautious in the use of opium, for if given to relieve cough it interferes with the secretions and embarrasses the respiration. It is necessary for the patient to cough to remove the mucus from the bronchial tubes. A teaspoonful of hot water will often have the effect of quieting the cough. A mild mustard plaster is often of service. The chest can be rubbed with camphorated oil or Roche's embrocation, this latter being a favorite application with the author. It is a fad at the present time to apply clay preparations to all the ailments of the body; but as the author has observed blisters produced by the application of one of these on several infants he warns against their use—he has never noted any good from them in cases of pneumonia.

The heart's action and the skin must be watched, and if the former shows signs of fatigue or the latter any cyanosis, increased stimulation must be resorted to and warm mustard baths and dry cups may be employed.

Beverly Robinson, who has paid considerable attention to the prevention of pneumonia, has observed that the micrococcus lanceolatus is one of the least tenacious of life among the pathogenic microörganisms, and that it does not thrive in an acid medium; therefore he recommends the frequent use of acid mouth-washes in times when the disease is prevailing. The sputum, stools, and urine of the patient should be destroyed, and the mouth washed frequently with an antiseptic solution. The antipneumococcic sera have not been found to have any marked benefit, though some have thought that there has been a slight reduction in the mortality shown. Even those who have given the serum in large doses have not been able to report any great success. One of the prime factors in the treatment of pneumonia is to watch the condition of the stomach and bowels, for in nearly every case there is great disturbance of these organs. The food must be such as will be easily digested and cause no fermentation. If the stomach and bowels keep in good condition, the battle is half won. Milk should be diluted and not given in too large amount at a time. The child should be fed at regular intervals, and plenty of good water given. The bowels should be opened at the commencement of the disease with castor oil or calomel, and afterward kept open by enemata.

TREATMENT OF TABES DORSALIS.

After detailing three cases of this disease in the *Lancet* of September 30, 1905, HAWTHORNE describes the treatment as follows:

The first patient—a man with tabetic neuralgia—had for three weeks been taking chloride of aluminum, the remedy introduced by Sir William Gowers for tabetic pains. In addition, as soon as he was conscious of the approach of an attack of pain he took ten grains of acetanilide and lay down for at least half an hour, the latter condition being of decided value in securing the full action of the remedy. Further, every night at bedtime a hot-water douche was applied to the spine for ten minutes, and once a week he had a mustard pack along the dorsal and lumbar spine. These latter measures may seem to be without reasonable basis, seeing that the pains are excited in all probability in the peripheral, not the central, nervous apparatus. Even so, it is

not impossible that changed conditions of circulation and nutrition in the spinal centers may influence the peripheral nerves. Certainly patients often find these local measures to be of distinct value, and this, after all, is the last word in a question of therapeutics. To whatever element in this scheme of treatment the improvement is due, the patient himself has no doubt that he is decidedly better, the pains being both less frequent and less severe.

Another patient with ocular paralysis when first seen was brought fully under the influence of mercury and potassium iodide, on the supposition that the condition might be due to a gumma or syphilitic meningitis. But as this, after a three weeks' course, produced no improvement it was discontinued, and arsenic and nux vomica were prescribed, together with the local application of electricity. Whether as a result of these measures or merely as a coincidence the sixth nerve paralysis soon began to improve, and the patient remained well for some time, when a third nerve paralysis developed. He has been returned to the tonic treatment, which he probably discontinued far too soon. It is treatment of this order, rather than large doses of mercury and potassium iodide, that is required by the degenerative nerve lesions following specific disease. At the outset, as here, if there is the possibility of a specific deposit or inflammation as the cause of the symptoms, it is right to give a short and energetic course of antisyphilitic treatment. But if this does not soon produce the desired result it is useless, perhaps even worse than useless, to continue it. Much the same may be said with regard to the patient with optic nerve atrophy. This in cases of tabes dorsalis is a degenerative process, the indirect result of the syphilitic or other toxin, and not an outcome of a definitely specific lesion. Antisyphilitic treatment, in the author's experience, never does these cases any good, and he questions whether it does not sometimes do harm. Improvement is in some instances produced by the hypodermic use of strychnine, but to secure this the drug must be given in full doses—that is, in doses which produce physiological reaction, and the capacity of different individuals in this respect varies with wide limits. You can hardly push the remedy to this extent unless you have the patient under continuous observation, and hence in outpatient practice this plan of treatment hardly gets a fair chance. But in more than one case the author has seen the measure of sight improved by it, though he admits the improvement was but for a season. Altogether, tabetic optic nerve atrophy is a hopeless condition, yet if noted early, strychnine, as above described, combined with full doses of cod-liver oil and other tonics, will do something to stay its progress.

TREATMENT OF GASTRIC ULCER.

In the *New York State Journal of Medicine* for October, 1905, HAYES gives the following advice as to the essentials of medical treatment:

1. Rest in bed, ordinarily four or five weeks—*i.e.*, a week or two if possible after abnormal signs and symptoms are controlled. The rest during the first few weeks should be complete, the patient not being allowed to sit up for any purpose.

2. Proper alimentation. This includes the selection of a suitable diet and feeding by rectum in the more severe cases.

The importance of proper alimentation cannot be overestimated. It is necessary to vary the food according to the need of each particular case, but the following will serve to illustrate the general plan employed: Milk, if it agrees, may be given, one-half to one glass every two hours. It should not be very hot or ice-cold, and may be combined with two ounces of Vichy or lime water. If taken plain, it should be slowly sipped and insalivated. If milk is not well tolerated, the whites of two eggs beaten up with water and two ounces of beef juice may be given alternately every two hours. This should be continued for a period of about ten days, until the symptoms are well controlled, when there may be added strained gruels, thickened soups, flaked rice, the fine wheat cereals or tapioca cooked until thoroughly done, chicken or pigeon stewed and minced, fish with a tender white meat (baked or broiled), soft-boiled or lightly poached eggs, bread (a day or two old, free from crust), butter, and cream. After a few weeks the patient may be allowed a general diet, but should be warned to ab-

stain from all seedy fruits or vegetables of coarse texture and with tough hulls. The latter when served should be made into a fine purée.

Rectal feeding should be employed for four to fourteen days in hemorrhage and severe cases. The following suggestions may prove helpful:

Give cleansing enema one hour before nutrient enema.

Nutrient enema may be given through long tube (with side openings, velvet eyes), patient's hips being raised on pillow. A towel should be held against the anus for twenty minutes. Patient to retain position on pillow one-half to one hour.

Enemata to be given three times daily.

FORMULÆ.

(*a*) Milk, peptonized, 5 ounces;
Yolk of egg, 1;
Claret, 1 tablespoonful;
Prepared cereal food, 1 tablespoonful;
Salt, ¼ level teaspoonful.

(*b*) Milk, 4 ounces;
Water, 1 ounce;
Eggs, 2;
Salt, ¼ level teaspoonful.

The milk and egg in this preparation may be predigested with pancreatin 5 grains and bicarbonate of soda 15 grains. Place receptacle containing this mixture in wooden bucket of water as hot as can be borne by hand and allow to remain one hour. One tablespoonful of arrowroot made into paste may be added before predigesting.

(*c*) Some standard preparation of peptones, 1 ounce;
Milk, 5 ounces;
Salt, ¼ level teaspoonful.

Alcohol may be driven off peptone solution by using boiling water in making dilution or allowing to simmer a short time on stove.

Add 3 to 5 minims tincture of opium to each enema if bowel is irritable.

3. Suitable medication. Drugs are needed to control bleeding if present, hyperacidity if present, to protect ulcer and to stimulate healing, to control anemia, and to regulate the bowels.

A warm compress over the stomach is useful if comfortable to patient.

The remedies commonly employed with benefit are nitrate of silver, which should be given in solution, one-fourth grain in a half-ounce of water undiluted every morning when patient awakes, for a period of about ten days. After stopping this it is helpful to give bismuth subnitrate in drachm doses at bedtime, which may be continued for weeks if need be.

If an alkali has not been combined with the liquid nourishment a powder made up as follows may be given fifteen minutes after the food is taken:

Bismuthi subcarbonatis, gr. iij;
Sodii carbonatis,
Magnesii carbonis levis, ää gr. v.

In case the bowels are relaxed, prepared chalk should be substituted for the magnesia in the above powder.

Extract of belladonna, in doses of 1/50 to 1/25 grain three times daily with meals, often increases the comfort of the patient and helps in the cure.

After the first ten days Carlsbad Sprudel salts powder, one-half to two teaspoonfuls dissolved in a half-pint of warm water, should be given in the morning a full hour or more before food is taken. If necessary the bowels may be moved by an enema of warm water at any stage of the treatment.

For Hemorrhage.—If there be hemorrhage the essentials of the treatment are:

Absolute quiet.

A hypodermic injection of morphine sulphate, gr. ½.

Atropine sulphate, gr. 1/150.

Adrenalin chloride (1:1000), 30 drops well diluted, by mouth.

Ice-bag or cool compress to epigastrium.

If necessary, one pint warm normal saline solution by hypodermoclysis, by rectum, or by intravenous injection.

Nutrient enemata after twenty-four hours.

For Anemia.—Iron, preferably a liquid preparation, as tincture of the chloride of iron, 10 to 15 drops, in egg-albumen water taken through a tube three times daily (Ewald).

Fleiner's method, which is of unquestioned value, in suitable cases, is employed as follows:

Lavage till clear fluid returns, after which bismuth subnitrate, 2½ to 5 drachms, in a glass of warm water, is allowed to flow into the stomach. The tube is then compressed, and the patient occu-

pies a position favoring deposit of the bismuth on ulcer. After five or ten minutes the water is withdrawn through tube, leaving a healing, protecting coating of bismuth.

Van Valzah and Nisbet think it wiser to omit use of tube and to administer one glass of Carlsbad water to cleanse the stomach, and then one hour later to give 2 drachms of bismuth in one-half glass of water, once daily for seven to ten days.

Riegel advises the administration of bismuth in all cases of ulcer. He gives 150 grains suspended in water, having the patient drink this some time during the forenoon.

TREATMENT OF DIABETES.

In his Herter lecture VON NOORDEN had this to say about the treatment of diabetes (*Medical News*, Nov. 4, 1905):

Years ago the only treatment of diabetes was symptomatic. To-day the dietetic treatment is the best. As regards prophylaxis, it is unfortunate that the large majority of the cases are well advanced before we are asked to treat them. But in special cases one may exercise an efficient prophylaxis. Thus, when several cases occur in the same family one should be on guard against additional cases. Transitory glycosuria should be neither slighted nor neglected. It is a warning signal. The physician should make frequent examination of the urine, and the carbohydrates in the diet should be reduced to a minimum. This precaution is based on abundant experience. Plenty of carbohydrates reduces the toleration capacity of the patient. There is no true etiological treatment, for the true etiology is not known. There is no such disease as a neurogenous diabetes, but there is a neurogenous glycosuria, which is transitory and plays a large part in the production of true diabetes. In many diabetics nervous influences lead to an increase of the diabetes. In severe cases the nervous influences are obscured, but in the mild cases the connection between the nervous system and the diabetes is clear. Mental excitement may cause the appearance of glycosuria in a diabetic, who, under an appropriate diet, is entirely free from it. This occurs most frequently in neuropathic or neurasthenic individuals. These are the cases formerly called neurogenous diabetes, but are really cases of true diabetes.

Undue attention to the nervous factors may cause a dangerous neglect of the dietetic factors. The aim should be to prevent a slight diabetes from passing into the severe form. It is customary in many instances to give all foods to neurasthenic diabetics, on the plea that the limitation in diet disquiets them; this conception is false. Do not advocate a one-sided treatment of diebetes in these cases, for they may be benefited by an adequate recognition of the nervous factors. Frequently removal from the wear and tear of life is sufficient. In some cases, in spite of the treatment of the nervous system, the alimentary diabetes remains. Treatment of the nervous factors may require soothing remedies, as potassium iodide, codeine; sanatorium treatment may help. Syphilitic affections may produce glycosuria through the nervous system. There may be a syphilitic meningitis. The syphilitic lesions of the pancreas are frequent; they are chronic induration, parenchymatous pancreatitis, seen frequently in children, with the history that the parents had syphilis at the time of conception. There are metasyphilitic diseases which affect the pancreas. Von Noorden agrees with Alfred Meyer, of New York, that corrosive sublimate may improve certain cases of diabetes; but there are only half a dozen cases in the literature of the cure of diabetes by means of antisyphilitic remedies. It is worth while to continue experiments along this line with this caution: diabetics are very sensitive to mercury. Organotherapy has been directed against the causes of glycosuria and hyperglycemia, with a view to promote glycolysis. The pancreas preparations deserve first mention. Ten different preparations have been tested in von Noorden's clinic; extracts were given by stomach and subcutaneously; it is now agreed that they all have no effect. They are, however, good for other things, as the digestion of fats, which is impaired in many cases. Cohnheim's mixed extracts of muscle and pancreas have been recommended by Croftan, of Chicago, but since Cohnheim's experiments have not been veri-

fied, these extracts are not recommended. Thyroid and suprarenal extracts have been used, but these may themselves produce glycosuria. Liver extracts were recommended in France years ago. These have been tried without effect. In spite of all the disappointing results, many possibilities lie in organotherapy. We ought to obtain from organs substances that increase the capacity of the body to metabolize sugar.

The number of drugs that have been recommended in the treatment of diabetes is surprisingly large. Only the more important ones will be considered. Opium deserves first consideration. It is useful, but has been greatly misused. Patients have been turned into true opium-eaters without relief of the diabetes. While the patient is excreting large quantities of sugar, opium is not indicated. It is useful in cases in which the glycosuria has already been reduced, say, to 20 grammes per day by appropriate diet. Having thus reduced the sugar to a minimum, energetic opium treatment will cause the entire disappearance of the sugar; .12 to .15 gramme of codeine daily is necessary. Diabetics stand opium well; at first experiencing, as the result of its use, fatigue, relaxation of muscles, and loss of appetite, they soon become accustomed to the drug. This remedy is valuable in attaining the end sought. The *modus operandi* of opium in diabetes is unknown; possibly it cuts off the nervous influence. The second drug to deserve consideration is salicylic acid and its derivatives, as aspirin, which last is the best, injuring the alimentary canal the least. Salicylic acid is useful in those cases in which opium fails. The former is good in slight cases and during the time when carbohydrates are permitted. It improves the assimilation of the carbohydrates. Cases which can stand only 60 grammes of carbohydrates without salicylic acid can take 100 grammes of carbohydrate, if they also take 3 grammes of salicylic acid a day. This drug has a more marked effect in reducing the quantity of sugar than an equal quantity of antipyrin. Salicylic acid is contraindicated if there is any renal complication, and both salicylic acid and antipyrin if there is gastrointestinal irritability. It has been found that the dried fruits and the extracts of syzygium jambolanum counteract the effects of phloridzin diabetes. It is doubtful if true diabetes can be ameliorated by it. Both successes and failures have been reported from its use. A happy mean, however, may be followed. In some cases this drug has diminished by 20 grammes the amount of sugar in the urine, but the good effects ceased after three or four weeks. It cannot be predicted in any given case that jambul will or will not have a beneficial effect. Experiment will alone determine this. Just like salicylic acid it may be used for three or four weeks at a time. It is not surprising that the credulity of diabetics has fostered the large number of quack remedies which have been applied in the treatment of this disease.

The treatment in health resorts has been unduly relied upon. The chief one of these is Carlsbad, with its alkaline sulphuric waters. The advantages claimed for the health resorts are mostly humbug. The alkalinity of the waters is not sufficient to have any effect upon that of the blood. The patient may get much more alkali at home than can be gotten at the spas. Acidosis is, in fact, not much lessened by large doses of alkali. The Carlsbad cure should be looked upon as a unit if its beneficial effects are to be explained. The Carlsbad water, if employed at home, is not as efficient. It is a fact that many diabetics return home from Carlsbad with their tolerance for carbohydrates improved. There are five factors that enter into this cure: (1) The patient is completely removed from the worries of daily life. (2) There is a long stay and plenty of outdoor exercise. Some diabetics cannot stand severe muscular work; but some patients are benefited by long walks, which diminish the glycosuria. (3) The diet in health resorts is carefully regulated, although the dietary is not very much restricted, for the combination of the alkaline waters and a very strict diet has a tendency to make the patient nervous and weak. (4) The physicians of the Spa are well experienced in the treatment of diabetes, which is of eminent importance in the whole cure. (5) The balneology and the internal use of the mineral waters favorably influence many complications, such as digestive disturbances, obesity, gout, etc. The two essentials in the therapy

of diabetes are a general regulation of the mode of life and a regulation of the diet. These do not apply to the same extent in any other disease.

COPPER AS A PURIFIER OF POTABLE WATER.

The assertion that if our present galvanized-iron cisterns were replaced by clean copper reservoirs there would be an end of water-borne disease sounds chimerical, but there seems to be little doubt that water kept in clean copper containers undergoes a distinctly purifying process as regards both its bacteriological and infusorial inhabitants. The fact that copper is sufficiently soluble in water to render the latter sterile has suggested the treatment of polluted water with small quantities of copper salts, and the results are very striking. Not only is the water freed from algæ and rendered odorless, colorless, and fit for consumption as regards its appearance, taste, and smell, but the action of the copper salt goes further and kills the microörganisms. Such was, at any rate, the astonishing result reported in a practical experiment made by the public health authorities in Massachusetts, and yet the addition of sulphate of copper amounted to only one part of the crystalline salt to over 8,000,000 parts of the water. The same effect is obtained, it is stated, by immersing in the water a bright sheet of the metal, provided a sufficiently large surface of the metal is present in proportion to the bulk of the water. The application of the method is reported to be "practical, simple, and safe." Moreover, the amount of copper dissolved would appear to be in proportion to the amount of organic matter present, so that an insoluble deposit of copper is formed, the clear water being free from the metal.

The question has been recently studied by the bacteriologist and analyst of the government of Natal, Mr. H. Watkins-Pitchford, who concludes that one part of copper sulphate in 100,000 parts of water is sufficient to destroy the ordinary bacterial flora of running water if allowed to act upon it for twenty-four hours. Again, one part of the copper sulphate in 75,000 parts of water—*i.e.*, about a grain per gallon—is sufficient according to his observations to destroy the vitality of the typhoid bacillus in an infected water with an exposure of three hours. Copper vessels if presenting a sufficiently large polished surface exercise, he adds, a distinctly controlling influence upon the bacterial life present. He sums up by stating that in sulphate of copper used in water in the proportion indicated "we possess an agent which promises to be both valuable and safe," and practical trials he suggests should be made in view of the incidence of water-borne diseases upon the South African communities.

It is an important observation that the water treated by the copper sulphate method becomes freed from the sulphate in proportion to the germicidal effect exerted by it, for this bears obviously on the question of the effects that minute traces of soluble copper might have upon health. If copper salts are shown to have such powerful effects upon pathogenic organisms it seems hardly possible that they would in the long run be entirely without disturbance upon the tissues of the human organism. There seems to be, however, as Mr. Watkins-Pitchford points out, a general agreement of scientific opinion that small quantities of copper can be ingested even regularly without producing any deleterious effects upon the system. Before any attempt is made to purify water in this manner and on a large scale, as when a community is affected by typhoid fever, this statement of the innocuousness of traces of copper salts should be very carefully examined. —*London Lancet,* October 28, 1905.

MEMBRANOUS COLITIS.

HALE WHITE in the *Lancet* of October 28, 1905, tells us as a result of observing sixty cases of this condition that by far the most important part of the treatment is to keep the large bowel empty. The simplest way to do this is by aperients, and in many cases castor oil by the mouth will cure the patient. The best time to give this is the early morning as soon as the patient wakes; then the bowels are usually comfortably opened after breakfast. Many people wake an hour or two before they get up, so the oil should be taken then. Between half an ounce and an ounce is usually required. If the disease has lasted some time, many weeks, even up to twelve or sixteen, may be

needed before improvement is observed; the treatment should never be given up until a long trial has been allowed to it, and in all cases it should be continued for some months after apparent recovery. The writer has known several patients who feel so much better when taking the oil that they have continued their morning dose of castor oil for years; indeed, they are still taking it. Usually the membranes gradually disappear entirely, but a few sufferers who are otherwise absolutely well continue to pass a little membrane occasionally. A minority are so nauseated by castor oil, however given, that they cannot take it; if that is so, sulphate of magnesium should be tried instead, or if this be found unsuitable calomel should be given over night. White has known both of these succeed when castor oil could not be tolerated. Should these methods fail the large intestine should be kept empty by washing out; if this is done plain water at a temperature of 100° F. is best. A pint or even more should be used at a time, and the water should be run in by a raised funnel. There is, however, no doubt that lavage is more effectual when carried out at Plombières than when used in England; if, therefore, treatment by simple aperients fails the patient should go to Plombières.

In very severe and otherwise intractable cases the large bowel has been kept empty by allowing all the feces to escape by a right-sided colotomy. Mr. Golding-Bird and the writer have already described some such cases. Since they published their paper White has had one other case in which the operation has been done by Mr. Bland-Sutton for membranous colitis. The patient was much improved by it, but, unfortunately, she died from cancer of the breast. The operation should be very rarely performed, for it is very awkward to manage a right-sided colotomy after the operation, as the feces are so fluid that the skin can only be kept clean with great difficulty, and hence it may become inflamed, and the frequent escape of liquid feces is very disagreeable. It may be difficult to close the wound, which must be kept open at least a year, and in one case after it was closed the trouble returned. The writer has from time to time discussed the operation with patients, but as a rule they have declined it. Should it be done there is no need regularly to wash the bowel through from the artificial anus to the anus; all that is necessary is for it to be empty, and to start it in this condition one wash through may be given when the artificial anus is made. He has not seen short-circuiting done for this disease, but it has been done, and might be tried if purgatives and Plombières had failed; but as in a severe case the trouble extends very low down in the large bowel, connection must be made as low as possible with the rectum. In thinking of operation it must be remembered that the disease does not of itself kill, and it might well be, in cases that have lasted many years, the neurotic symptoms, having become a second habit with the patient, would not pass away even if the membrane ceased to form, just as the neuroses associated with a floating kidney are sometimes not benefited by fixing it. None of these sixty patients have been wage-earners, and this no doubt has weighed with such as have declined operation.

A few cases appear to have derived much help from the application through the abdomen of high-frequency currents, but with others it has been useless. Various diets have been recommended, but the writer's experience has been that ordinary plain simple food is the best. Such things as fish, plain food, and bread and milk may be given, and he has not seen any good follow the large amounts of indigestible vegetable material which have been advised. Sometimes the mistake is made of giving these patients too little food; they are really starved. It may be that when first seen they are thin and wasted. If that is so the attempt should be made to increase the weight slowly by judicious feeding and rest. The so-called intestinal antiseptics are worse than useless. If diarrhea is present it should never be checked by astringents; castor oil is the best treatment for it. Bad cases should be kept in bed for some time, and all patients should be warmly clad, especially round the abdomen; indeed, sufferers from membranous colitis are usually made worse by exposure to cold. We are often told that "treatment should be directed to the underlying nervous conditions by appropriate means," but the objections to this are that, in the first place, it is not easy to find the appropriate

means, and in the next place, even if they could be found attention to them might unduly attract our energies from the one thing needful, viz., to keep the large bowel empty. No case should be regarded as incurable until treatment has been continued for months. Not infrequently improvement does not set in till many months have elapsed.

White does not refer much to the literature of the subject, for his object has been to record his personal experience. Many references to the subject are given in the treatise by Langenhagen entitled "L'Entercolite Muco-membraneuse," and others will be found in the volume of Nothnagel's Encyclopædia containing "Diseases of Intestines and Peritoneum," American translation, and in von Noorden's "Membranous Catarrh of the Intestines."

MONOTONY IN PRESCRIBING.

The administration of drugs, like other branches of practical medicine, is undoubtedly undergoing a species of evolution. It has gained in accuracy and efficiency by the enormous strides that have been made in our modern knowledge of materia medica. At the same time, the developments of surgery have cut deep into the faith that was formerly attached to the efficacy of drugs. This attitude of doubt and interrogation has been further emphasized by the clearer insight into the intimate causation of many morbid conditions afforded by the science of bacteriology. In spite of the profound alterations in the treatment of disease that have been brought about in the foregoing and in other ways, there yet remains a great margin of symptomatic and obscure ailments which come within the province of the physician to alleviate or cure. In other words, medicine has not yet attained the footing of an exact science, and its disciples have still to trust in many instances to a more or less purely empiric art.

The practitioner of to-day is furnished with so vast an armory of remedies that he may well be excused for dismissing the majority of them with scant courtesy, while he confines his practice to the changes rung upon a score or so of well-tried and familiar medicaments. The attempt to cut the Gordian knot in this fashion, however, is likely to curtail the success of the practitioner. In any case he will do well to consider the advisability of adding a little variety to his prescriptions, for his own sake as well as for the benefit of his patients. His attention may be drawn to an interesting communication on this subject published in the correspondence columns of the *Medical Press and Circular* of October 4, 1905 (page 362). This letter in question is from the pen of Dr. William Murrell, who is peculiarly qualified to speak with the voice of authority upon anything pertaining to materia medica and therapeutics. The gist of his contention is that medical men are wont to drift into a purposeless and enervating monotony in prescribing. His main illustration is taken from tincture of nux vomica, which some years ago was shown to be ordered more frequently than any other drug or preparation as the result of an analysis of over 25,000 prescriptions. Nowadays the man in the street is so universally intelligent that he has a nodding acquaintance with most of the drugs in common use. There is a great deal of force in Dr. Murrell's contention that the patient who finds nux vomica in every prescription quite irrespective of the nature of the ailment from which he may be suffering is apt to lose faith in the originality of orthodox members of the profession, and to drift into the hands of quacks. The matter, so far as that goes, might be put much more forcibly. The difference between the skilled medical man and the quack is that the scientific man commands a host of remedies with understanding and adaptation, while the charlatan simply and sheerly by rule of thumb uses a few drugs of which he knows nothing, judged from the scientific standpoint. Dr. Murrell suggests the substitution of ignatia, a tincture prepared from the ignatia bean, for the "interminable" nux vomica. As a matter of fact, both tinctures contain strychnine and brucine. The usefulness of ignatia appears to be as wide as that of the corresponding tincture of nux vomica, while it apparently exerts a special controlling influence in hysterical cases. Then, again, as regards bitters, medical men are for the most part conservative and content to ring the changes upon quassia, gentian, and calumba, to the neglect of chiretta, canella, cusparia,

and other good drugs of that kind. In purgatives Dr. Murrell points out that turpeth may be advantageously substituted for jalap. The points thus demonstrated deserve careful consideration.

The British Pharmacopœia is an excellent compilation, but in its present form there is a great mass of overlapping and superfluous drugs and preparations that might be considerably reduced with great gain to its practical value. A concise description of the drugs in common use, with an official indication of the leading groups, such as astringents, heart tonics, alteratives, purgatives, and so on, would furnish a handbook likely to appeal to the practitioner far more than the voluminous book of reference which he now finds at his elbow. We fear, however, that medical educationalists are not yet prepared to simplify and reduce their curriculum. Possibly their knowledge of detailed facts is not yet of sufficient magnitude to warrant such a selection, but nine out of ten general practitioners perform the process of condensation on their own account.—*Medical Press and Circular,* Oct. 4, 1905.

THE TREATMENT OF SOME OF THE FORMS OF SO-CALLED RHEUMATISM.

In the *Clinical Journal* of October 11, 1905, LUFF deals with the various means of treating the different forms of fibrositis—muscular rheumatism, lumbago, and rheumatic neuralgia. He says that in these affections salicylates are of little curative value, as they do not exercise the same specific action as in acute rheumatism. Aspirin is of decided use for the relief of pain in severe cases, but it should only be given with that object. It acts better than the salicylate of soda owing to the fact that it is not decomposed and absorption does not commence until it reaches the intestinal tract, where a slow liberation of its salicylic acid moiety takes place. It probably also exercises a beneficial effect in cases of abnormal intestinal fermentation. Iodide of potassium is a most valuable drug in the treatment of fibrositis. It seems to exercise a direct effect in removing the hyperplasia and serous exudation in the fibrous tissues. It should always, if possible, be given in full doses of 10 or 12 grains, and should be combined with tonics, such as nux vomica or the compound glycerophosphate syrup. In cases in which rheumatic neuralgia or neuritis is present arsenic should be administered as well. If the gastrointestinal tract is disordered the initial treatment should consist in the adminisration of a dose of calomel or blue pill followed by a saline purge.

One of the most useful external applications is a mixture of equal parts of chloral hydrate, camphor, and menthol. These three substances form a liquid when well rubbed together. This liquid should be painted over the painful area, and then be gently rubbed in with the fingers. Some patients find the cold sensation produced by the menthol objectionable; in such cases the menthol may be omitted, and equal parts of chloral hydrate and camphor employed, which also form a liquid when rubbed together. Another useful external application is to paint the painful area with tincture of iodine and then to apply a hot linseed poultice or a very hot fomentation. The heat converts the iodine into vapor, which exercises an anodyne effect, and, probably by absorption, directly acts on the affected fibrous tissues.

Methyl salicylate and mesotan are also very valuable external applications. The former is objectionable to many people on account of its peculiar and penetrating smell. Mesotan, which exercises a very beneficial effect, especially in cases of muscular fibrositis, sometimes produces a most troublesome and painful skin eruption. This, however, is generally caused by its being improperly employed. It should never be used alone, but should always be diluted with an equal quantity of olive oil. This mixture is then to be painted over the painful area with a camel's-hair brush; it should only be painted over any given area once in twenty-four hours, and the painting should not be renewed if any definite redness of the skin persists at the end of that time. Another important point to bear in mind is that moisture decomposes mesotan, and therefore favors the production of a skin eruption. The mixture of mesotan and olive oil should be kept in a perfectly dry bottle, and the skin should be thoroughly dried by rubbing with a little rectified spirit or brandy before the paint is applied. After the application the painted area should not be

covered up, as it is most necessary to prevent the accumulation of sweat over the affected part.

Heat is of the greatest use in the treatment of these cases, and if employed early will frequently abort an attack. Heat dilates the peripheral vessels, lowers blood-pressure, causes diaphoresis, and relieves pain. If heat is to be applied to the entire body, the electric light cabinet bath is the most convenient and most useful form. The combination of heat and light rays is most useful and far superior in their effects to the employment of dark heat. The radiant heat produces very rapid and free diaphoresis, stimulates the skin, and improves metabolism, so that the patient feels refreshed instead of exhausted after such a bath. For the entire body an electric light bath at a temperature of 170°F. is well borne.

If heat is to be applied locally, such as to one limb, the best method is to place the limb in a cylinder in which the air is superheated by some means or other. The "Fango" treatment is also of use for local purposes; this consists in packing the affected limb in hot volcanic mud. The treatment of lumbago by means of ice-bags applied over the lower part of the spine has been recommended as a means of cutting short an acute attack, but the writer has had no experience of such treatment.

In very acute cases rest of the affected part may be necessary, but this is not incompatible with baths and properly regulated massage. Local massage is of the greatest use in most cases of fibrositis, provided the very acute stage has passed. The manipulations should be very gentle at first, so as to promote removal of exudation and to relieve the tension. Afterward more vigorous massage is most efficacious in dispersing the indurations and fibrous thickenings, and in removing the stiffness of the affected part.

In most cases of severe fibrositis he advises the use of electricity in combination with the electric light bath and massage. In cases where neuritis is present the continuous current is best, but the faradic current is most useful in helping to disperse fibrous indurations.

When most of the pain has passed away the patient should be taught to exercise and stretch the affected muscles and aponeuroses. This should be carried out daily for half an hour, and is best effected by means of light dumb-bells or some form of exerciser.

The general treatment at a spa is useful in many cases. Many forms of hot baths are there obtainable, and the patient is enabled to give ample time to the massage, electrical, and other forms of treatment.

Unlike gout, no special dieting is required in these affections. Moderation should be the key-note of all prone to the various forms of fibrositis, and especially should they avoid foods which their experience has taught them to be apt to produce gastrointestinal fermentation. He is opposed to the indiscriminate prohibition of such articles as red meats, sugar, jams, bread, fruit, etc., in the case of sufferers from the various forms of fibrositis. All these articles of food, if they do not produce indigestion, are perfectly wholesome. It has become of late years a fashionable craze to attribute many of these forms of "chronic rheumatism" to uric acid. Luff most emphatically declares that it has no part or parcel in the production of any of the morbid conditions dealt with in his article. Uric acid is a harmless by-product of the human economy which has been most shamefully exploited as a dangerous poison.

Sufferers from any of the forms of fibrositis should avoid the seaside and damp climates generally. In such climates the affected parts ache, and relapses are apt to occur. A dry, bracing, inland climate is the one best suited for these affections.

INFANTILE DIARRHEA.

The *London Practitioner* for October, 1905, contains an article by SUTHERLAND on this subject. He reiterates the well known fact that milk in any form must be at once stopped as part of the diet. Milk is especially dangerous in this disease, because it usually conveys the poison. It is a good medium for the further growth of the organism in the alimentary tract, because during the acute stage the patient's stomach cannot digest it. We have, therefore, to find some temporary substitute during the time that attention is being devoted to thoroughly clearing out the gastrointestinal tract. In

very acute cases the best plan is to stop all food entirely, and to give only boiled water, or barley water, or rice water, for twenty-four or forty-eight hours. This usually meets with a strong protest in the domestic circle on the ground that the infant will be starved to death. The anxious mother may be assured that the infant is incapable of digesting or absorbing any food, and her attention may be directed to the motions, in which the milk given has appeared quite unchanged. As the thirst is usually very great, the water should be administered frequently, every hour or two hours, but not in large quantity, as vomiting is so easily induced. If the vomiting is very severe, it may be necessary to give only one or two teaspoonfuls of water at intervals of fifteen or twenty minutes. A little brandy is probably beneficial, if given well diluted —a teaspoonful in half a pint of water during the day, and the same amount during the night.

At the end of twenty-four or forty-eight hours, or when sufficient time has been allowed for the thorough evacuation of the bowels, a beginning should be made with food in the shape of albumen water, or weak veal, mutton, or chicken soup. Here the rule must be to proceed very slowly and gradually. Albumen water may be made at first of the strength of half an ounce of the white of egg to half a pint of water or barley water, and this may be rendered more palatable by the addition of two drachms of extract of malt. Similarly, an ounce of soup may be diluted with five ounces of water to begin with. As regards the feeding, the rule should be to feed every two hours during the day, and every four hours during the night, and only to give small quantities at first. If thirst is great, no harm is done by giving the infant water freely between the feeds. This modified diet may be carried on for one or two days, until the diarrhea is diminished, and the motions are not of a purely mucous character. If the albumen water is found suitable, there is no occasion to give the soup; but in some cases the soup seems better tolerated.

The third stage is reached when we commence tentatively a return to milk food. A trial of milk in one or other form should be made by alternating it with the albumen water. Of the various forms in which milk may be used, the following represents a scale of digestibility: (1) peptogenized milk (without added cream), (2) whey, (3) condensed milk, and (4) equal parts of cow's milk, lime water, and barley water. It is not necessary to take every infant through these four stages, but in one patient one form of milk will be found best, and in another patient some other form. Needless to say, if the milk provokes a recurrence of vomiting or diarrhea, it must at once be stopped. The chief points about the dietetic treatment are: (1) To give no food until the stomach can retain and digest it; (2) to begin with very weak foods and with small meals; and (3) to let the patient have as much water as he can retain, so as to help in washing out the bowel.

The medicinal part of the treatment, in the early stage, consists in the thorough cleansing of the intestinal tract as quickly as possible. The best drug is castor oil, which is more effective if administered in small, repeated doses. The following formula will be found convenient:

℞ Olei ricini, m. x;
Tincturæ rhei, m. v;
Glycerini, m. v;
Tragacanthæ, gr. ½;
Aquæ menthæ piperitæ, ad f5j.
Sig.: f5j every four hours.

This may be given every four hours for the first thirty-six hours, and then less frequently. It is usually well tolerated by infants, but if there is much gastric disturbance and vomiting it may be necessary to wash out the stomach first. Instead of the castor oil, one may use small doses of mercury. Gray powder in one-quarter-grain doses, or calomel in one-sixth-grain doses, may be given every two hours, until six doses have been taken. When the acute symptoms are subsiding, and the motions are becoming less frequent, a sedative mixture may be given as follows:

℞ Sodii sulphocarbolatis,
Bismuthi subnitratis, ää grs. ij;
Tragacanthæ, gr. ½;
Glycerini, m. x;
Aquam destillatam, q. s. ad f5j.
Sig.: f5j every six hours.

During the course of the illness various symptoms may be present which call for special treatment.

ON BOLDNESS IN THE TREATMENT OF SOME PHASES OF PNEUMONIA.

Under this caption MORISON writes in the *Medical Press* of September 27, 1905, and reminds us that in considering the conservation and relief of the heart we have to bear in mind the neuromuscular, hemic, and mechanical factors underlying cardiac action. Remembering the anatomical condition of the heart found after death from pneumonia, the general tendency to repletion of the right heart and depletion of the left, as in all tachycardial and asphyxial conditions, the maintenance of the irritability of the organ, and the relief of the dextral chambers are the chief objects of the physician. To maintain the irritability of the heart the hypodermic injection of strychnine pushed in proportion to the debility of the patient is the most useful measure. Provided the patient manifest the physiological antidotal condition to the overaction of the drug—namely, exhaustion—a carefully watched patient can tolerate repeated and considerable doses of strychnine without injury. Under these circumstances the writer has given 8 to 10 minims of the liquor strychninæ hypodermically in pneumonia every four hours for days with benefit. Digitalis and strophanthus he rarely uses in pneumonia, as the action of these drugs on a comparatively empty left heart tends rather to retard than promote the circulation.

Useful as opium is in inflammation of the heart, when also its retardation of respiratory action is noteworthy and desirable, the use of this drug in pulmonary inflammation is not so suitable. With a fairly full pulse and limited implication of lung, opium, as a hypnotic, is at times serviceable in pneumonia in the adult, but Morison has rarely used it, even under these circumstances, without some apprehension in this disease. On the other hand, when the lung is burdened with much bronchial or alveolar material in a softening condition, and the patient threatens to drown in his own secretion, the bold use of turpentine internally may be of much value.

Whether turpentine has any directly antiseptic value under these circumstances he cannot positively affirm, but he has known recovery to take place under its use in bronchopneumonia of a prolonged and septic type, when the condition of the patient appeared to be quite desperate, and after the appearance of superficial purpura. That it renders the blocked air-passages more pervious is certain.

The last but not the least important point to which the author refers in considering the bolder treatment of some phases of pneumonia is the question of bloodletting.

In the days of heroic venesection the object with which this measure was employed was the prevention or limitation of pulmonary engorgement. Inflammation was regarded as a purely mechanical determination of blood to a part, which might be prevented by opening a collateral tap in the circulation regarded as a hydraulic machine. Discouraged by the high rate of mortality in the disease under ordinary venesection, some advocated a greater boldness in bloodletting, and bled, *coup sur coup*, repeatedly and largely, in the endeavor to effect by this means what a milder bloodshed failed to do. But by this "jugulant" method, as it was called, our predecessors also largely failed, although statistics occasionally appeared to support each fresh departure. The general sense, however, was one of failure, and like the pause after a great war there was for a time so complete a truce to bloodletting that generations of students grew up and were dispersed into practice with nothing less than a horror of bloodletting in every form and under all circumstances. The public naturally, in time, took the same view, and he is a bold man who even to-day calmly proposes venesection in private practice in many cases even although all the indications point to its necessity. The writer recently met a confrère in consultation, who told him that he had sent for him simply because he dared not himself bleed an urgently orthopneic patient with bronchopneumonia. The patient was relieved of 12 ounces of blood from the arm at once, and with immediate benefit.

From what we now know of the nature of the pneumonic process we can understand why the blood preventive methods failed, as methods preventive of the progressive consolidation of a pneumonic lung, whether by bleeding or by ice, or by any other means at present known to

us, are bound to fail. The particular attack of pneumonia with which we have to deal may be severe or may be mild, but being micrococcal in origin the severity and duration of symptoms will depend upon the nature and virulence of the infective agent or agents concerned, although, no doubt, they are also influenced by the state of the inherent powers of resistance of the patient.

In the case of limited and easily accessible inflammations, such as otitis and pleuritis, associated with pain, a local loss of blood may by relieving tension remove pain and reduce inflammation. But the argument from these facts to the more general effect of bloodletting on visceral inflammation has not been found in practice to hold good. Boldness, therefore, in endeavoring to oust the infective agent by venesection, or to limit the pulmonary engorgement, is irrational. That will only be possible when we learn how to kill or starve the pneumococcus and associated organisms *in situ*, and in the general circulation, by some bactericidal or antitoxic serum.

The object of venesection, like that of the application of ice, is not to prevent inflammation of the lung, but to maintain the effective action of the heart. It is directed against cardiac failure, not pulmonary engorgement, and it is only when cardiac failure is threatened that venesection is admissible. As, moreover, such failure may occur more than once in the course of the same case, the same heart may have to be relieved by venesection on more than one occasion. The indications for the employment of venesection under these circumstances are urgency in dyspnea, with more or less duskiness or cyanosis of countenance, usually accompanied with fulness of the superficial veins, and diminution in the size of the radial pulse.

The precise delimitation of the area of cardiac dulness under these circumstances is not always an easy matter. The intervention of the sounding board of the sternum, together with the accelerated rate of respiration, and the presence of adventitious sounds in the lungs themselves, make it difficult at times to determine with exactness the extent to which the dextral chambers of the heart are dilated. Fortunately, such accuracy of physical diagnosis is not necessary to guide us, for the more general effects already mentioned, produced by cardiac conditions, are sufficient indications of the state of the heart. It is probable that one reason why the large bloodlettings of the past were not even more fatal than they were was the fact that venesection was practiced early in the disease, when the patient's strength was frequently fairly good.

Now that we regard the justification of bloodletting in pneumonia to be the presence of signs of cardiac failure, whether these occur early or late, the scope of venesection in such cases is, naturally, much and properly restricted. Of bloodletting late in a protracted case the author has no personal experience. At this stage the diminished absorption of food from the digestive tract is, in itself, a mode of depletion *a tergo*, and any additional bloodletting appears to be inadvisable. But even under these circumstances, if the retrogressive stasis in the circulation appears to be a dominant factor in the situation, it is conceivable that venesection to a moderate amount may be permissible.

As regards the amount of blood to be withdrawn to procure relief, 8 to 12 ounces, in presence of the signs of venous turgidity to which reference has been made, may suffice, and the more rapidly it is withdrawn the greater will the effect be. But the quantity abstracted must be regulated by observation of the effects of the measure upon each case, and the average quantities mentioned exceeded or diminished accordingly. In the case of children, a few leeches applied to the side, or in the right hypochondrium, may be sufficient.

A good deal of controversy of a theoretical nature has been raised as to whether any, and if so only a temporary, effect is produced upon the embarrassed circulation by bloodletting under these circumstances. That an effect is produced cannot be reasonably questioned. That it is only temporary may be admitted, provided, we also admit, that the more effective action of the heart which may ensue is maintained by other means, although initiated by bloodletting. Nor is anything except such temporary relief expected, desired, or necessary, as a result of venesection, to justify its employment. Relief is experienced by the pa-

tient and observed by the physician, and such temporary relief of distensive tension, coupled, as it should be, with the bold use of strychnine hypodermically administered, may be all that is necessary to restore force to the pulse and sufficient tone to the dilating chambers of the heart, to gain for the patient that reprieve from death which may make all the difference between the ultimate victory or defeat of his inherent forces over the processes of the disease.

There are other questions in the treatment of pneumonia, such as the value of oxygen gas, the use of alcohol, and the mental phenomena in some cases, which present points of interest. But while anything except a careful use of alcohol may be detrimental the author suggests a measure of that boldness in the treatment of pneumonia which was justly discredited when rashness was aggravated by ignorance and the remedy misapplied. Thus was brought about that revulsion in methods which engendered the tamely expectant attitude in the treatment of pneumonia so prevalent even now, which looks askance at any active interference with the course of the disease, and even lauds the fever as a process likely to limit the ravages of the pneumococcus, which we now know may be associated with other and more deadly organisms which may flourish long in the febrile state.

NOCTURNAL ENURESIS.

THURSFIELD in the *Clinical Journal* of October 11, 1905, states that there is scarcely a drug in the British Pharmacopœia which has not been praised as valuable in the treatment of enuresis, but there is none which does not, from time to time, fail utterly. At one time the writer believed he had found a drug in urotropin which was uniformly valuable in this disease, and in a limited number of instances a moderate dose of this drug does effect an immediate cure. The best results are obtained in those cases where the condition follows an acute infectious fever such as typhoid. It is necessary to give the urotropin well diluted, otherwise the patient may suffer from renal pain and hematuria; 10 grains in half an ounce of water to be further diluted with a wineglassful of water three times a day is the best method of using it. He tried it three years ago on a succession of 30 cases, with good results in 9 children. It is, therefore, a drug which it is well to remember when progress is unsatisfactory.

In the cases where urine is strongly acid he gives potassium citrate in doses of 15 grains to a drachm three times a day. But the drug which appears to be most useful is belladonna. We can give it in various forms, as liquor atropinæ, as the tincture, or as the extract. Personally, he generally uses the tincture, but not from any strong conviction of its superiority. Whatever form we employ, if we are to use it with success we must give it in large doses, carrying it to the extent of obtaining evidence of its action, and it must be used over a long period. He begins with 10 minims of the tincture three times a day, and then raises the dose rapidly to 30 or 40 minims, or even to a drachm. As the dose is increased the frequency of the enuresis will diminish, and after a period varying from two weeks to two or three months it will cease. Of course it should be combined with the other measures which have been discussed. At this point it is wise to continue the drug for another month, and then gradually diminish the dose, so that by the time we have cured the enuresis we are about half-way through the treatment of the case. The danger of poisoning the patient is very slight. The visual accommodation will be troubled in the majority of cases, and there will be a dryness of the throat and occasionally a smarting sensation in the pharynx and mouth, but all these are very slight troubles compared with the relief from the enuresis. If the accommodation is paralyzed, it will be necessary to keep the child from school for a week or so. But, as a rule, the author finds that the loss of accommodation passes off fairly quickly and that the patients tolerate a large dose extremely well. He has used other drugs, but has never found any so generally satisfactory as tincture of belladonna. Lycopodium, rhus aromatica, ergot, and antipyrin have all been used. He merely mentions the drugs which really have attained some measure of success.

In cases where belladonna fails to afford any relief he has not found any

drug which will effect improvement. With the dose of belladonna in excitable children he generally gives a small dose of potassium bromide at bedtime, and to anemic or ill-nourished children he gives iron in some form, and a small dose of arsenic, strychnia, or nux vomica, which are useful as general tonics. When all these measures fail, electricity is occasionally tried. He has inquired of Dr. Lewis Jones, who is in charge of the Electrical Department at St. Bartholomew's Hospital; he employs a faradic current with one pole in the urethra and one on the abdomen or back, usually finishing with a few "make and break" shocks of the constant current. He finds that he obtains some successes, but he has some cases in which he is absolutely unsuccessful; that is to say, he agrees with the general experience that we can cure a considerable number of cases, but there are some which we can hardly touch.

THE TREATMENT OF CONVULSIONS IN EARLY INFANCY.

THOMSON contributes a paper on this subject to the *London Practitioner* for October, 1905. He believes that if the convulsion lasts long enough to allow time for treatment, it is generally advisable to begin by putting the child into a mustard pack or hot bath. It will be good for him probably, and it will certainly soothe and relieve his alarmed relatives, who need something to do to take up their attention. To prepare the mustard pack a towel is dipped into a quart of tepid water, with which a tablespoonful of mustard has been thoroughly mixed. It is then swathed round the infant's body, covered with blankets, and left in position for from ten to fifteen minutes.

If the convulsive movements continue for more than a few minutes, or if they go on recurring at short intervals, more active measures are called for, and some form of sedative should be given. Chloroform is one of the best to use, and its administration is quite safe and often successful. Chloral hydrate is also very effectual, and its influence lasts longer than that of chloroform. If the child cannot swallow, it may be introduced into the bowel through a rubber catheter. For rectal injection 5 grains may be given to a baby of six months, and 10 grains to one of a year old. In severe cases perhaps the most effectual treatment of all is the hypodermic injection of morphine. Of this, gr. 1/24 may be given to a well-grown baby of a year, and the dose may be repeated in half an hour, if no effect is produced. Morphine should not, however, be given to weakly or undergrown babies.

The chief question with regard to treatment in most cases of convulsions, however, is not so much how to deal with the attack as how to prevent its recurrence. The answer depends largely on the type of case with which we have to do. We shall best deal with this, and also with other questions regarding prognosis, if we consider briefly a few of the commoner types of infantile convulsions.

THE TREATMENT OF DISORDERS ASSOCIATED WITH PRIMARY DENTITION.

GUTHRIE contributes a paper on this subject to the *London Practitioner* for October, 1905.

General preventive treatment consists in scrupulous attention to form and mode of preparation of diet. If the child's food is unwholesome, its alimentary tract will be unhealthy.

When sour milk in unclean bottles has set up diarrhea and colic, the best remedy is castor oil in emulsion with a little tincture of rhubarb:

℞ Olei ricini, m. x;
Tinct. rhei, m. v;
Glycerini, m. v;
Tragacanthæ, gr. ½;
Aquæ menth. pip., q. s. ad f3j.

To this may be added tr. opii in doses of one or two minims, if pain is extreme. The prejudice against giving laudanum to infants is groundless, except perhaps in those under the age of dentition. There is little danger in giving it even to these, provided that the dose be not too large, and that it be not repeated until drowsiness produced by it has passed off.

Salol may be added to the mixture when motions are peculiarly offensive, and bromide of potassium when restlessness and sleeplessness are pronounced.

Oral hygiene is of the utmost importance in teething infants. That which entereth the mouth defileth, and a teething baby puts everything therein which

is possible of insertion. Hence a reasonable discretion should be used in the selection of articles supplied for the purpose. Rubber rings, "comforters," dolls' heads, and the china ornaments on the mantelpiece should be washed before sucked. There is danger in the oft-sucked toy.

Nurses who possess a very Baalbek of ruined teeth should not indulge in preliminary suction of the bottle to make sure that the nipple draws, and that the milk is to the baby's liking.

Even "Walker-Gordon" milk should not be stored in the lavatory. The outside as well as the inside of a feeding bottle should be kept clean. Every baby should possess its own pocket-handkerchief, and a badger-hair gum brush. When the gums are painful, tender, and congested, they should be brushed with a solution of 10 grains of chlorate of potash to the ounce of glycerin of borax.

Should ulceration be present, the addition of 2 or 3 grains of resorcin to the above, and of a few grains of chlorate of potash to the castor-oil mixture, is most efficacious.

In the *American Journal of Dental Science* it is said (p. 327): "Many lives of children are probably sacrificed yearly because of the popular and professional prejudice against lancing." Such statements are pious opinions which lack confirmation.

Personally the writer has grave doubts that painful dentition has ever been the direct cause of death, or that life has ever been saved by lancing the gums. Even the oft-quoted cases of fatal so-called "teething convulsions" are attributable to gastrointestinal disorder. It is difficult to believe that "threatened meningitis," whether tuberculous or otherwise, has ever been averted by use of the lancet, or that the crisis in pneumonia can be hastened or diarrhea cured by such procedure. At the same time there can be no doubt that local pain may be relieved by bloodletting.

Simple scarification of the gum is all that is needed. Such barbarous usage as the removal, between elliptical incisions, of a portion of gum over a tooth, supposed to be offending, is not to be commended. As well as being cruel, it is illogical; for if the condition of the gum were merely that of tension over a tooth, a simple incision should gape at once, and so relieve the symptoms.

Gum-lancing should not be practiced in the absence of local indications for its use, and merely in blind hope of relieving "constitutional symptoms and distress not otherwise accounted for" (*op. cit.*). If unaccounted for, further investigation is required, not stabs in the dark. At the present time it is hardly likely that the purple hemorrhagic swellings of the gums met with in infantile scurvy will be mistaken for signs of disordered dentition, requiring local venesection. Yet there is ground for suspicion that, in former days, many a case of scurvy was so maltreated and ended fatally.

OBSTETRIC VIEWS THAT NEED REVIEWING.

STEPHENSON contributes a paper on this subject to the *Scottish Medical and Surgical Journal* for October, 1905. He states that a prolonged first stage is more frequently due to unfavorable mechanism than to rigidity of the os.

The size of the os is not the sole criterion of progress in the first stage. Along with this inner ring must be taken an outer ring, the vaginal attachment; the relative condition as to dilatation of both must be noted. The dilatation of the outer ring is mainly dependent upon the peripheral force, that of the inner ring upon the wedge action. The outer ring may be fully dilated before the inner has begun to open; defective dilatation of the outer ring may be the cause of delay in dilatation of the os.

The fetus is the predominant factor throughout labor; the presenting part exerts an influence on the first stage.

A moderate amount of liquor amnii is more favorable than when it is considerable, relatively to the bulk of the fetus. It is more favorable when the quantity permits of an early combination of direct pressure with the action of the amniotic fluid. An excess liable to retard progress begins when the fetal body is entirely surrounded by the waters; and defective action is greater the larger the quantity.

Until the head is born, dilatation and propulsion are effected simultaneously by elongation of the fetal ovoid, not by pressure on the breech. Dorsal exten-

sion is an important factor in the mechanism. Whatever hinders this action renders the process less facile; this may be an excess of fluid, but also it may be the position of the fetus.

The head is an efficient dilator, even in the first stage; but till the outer and inner rings are sufficiently dilated to admit of the head engaging them, there is a decided advantage in retention of the fore-waters. After the os is half-way dilated, unnecessary delay may arise from integrity of the membranes.

A NEW HYPODERMIC FORMULA FOR CAMPHOR AND CAFFEINE.

La Presse Médicale of November 1, 1905, states that CLARET has found the following formula very advantageous:

℞ Caffeine,
Salicylate of sodium, āā grains 4;
Distilled water, minims 15.

Mix thoroughly and add of

Spirit of camphor (10 per cent), minims 15.

It is asserted that this formula remains clear for a long time.

[We have had this solution tested and find that the claims for it are correct.—ED.]

THE TREATMENT OF INFANTILE SCURVY.

The *London Practitioner* for October, 1905, contains an article by COLEMAN in which he discusses this subject. The treatment he advises is simple: (1) Stop all food which is not absolutely fresh. (2) Give the child abundance of fresh food. The appetite is usually very good, and unless the mouth is very sore the child will take such food freely. Unboiled milk, orange or lemon juice, suitably sweetened, fresh cream, raw meat juice, are the best to employ. Potato soup, made by sieving a potato cooked in its jacket and pouring over it a breakfast cup full of boiling milk, slightly sweetened, may also be given, if the child is over ten months old. The limbs should be steadied either by sand-bags or by loosely encasing them with sheet lead. Firm bandages and splints should be avoided. Weak peroxide of hydrogen lotion is a useful application for the stomatitis. A few doses of opium are occasionally necessary, if the pain is very acute, but the rapid improvement, if proper diet is provided, renders sedatives unnecessary in the great majority of cases. As a rule no drugs are required. But it must be repeated that rapid improvement is not to be looked for, unless all preserved foods are omitted from the diet. The writer has seen three cases in which, although fresh milk, raw beef juice, and orange juice were freely administered, the pains did not subside until the patent food, which had been persisted in, was stopped. As soon as this was done the subsidence of all scorbutic symtoms was immediate.

PRURITUS AND ALLIED CONDITIONS AFFECTING THE VULVA.

The *Clinical Journal* of November 15, 1905, contains an article by MCCANN in which he states that when practitioners fail in the local treatment of pruritus it is through not getting properly at the disease; and the reason is that they have followed the advice of the books as to the application of the different remedies—that is to say, we are usually told in the books to apply the lotion or ointment, or whatever it may be, on a piece of lint or cotton-wool and place it between the labia. It is curious that pruritus of the vulva has a close relationship with pruritus ani, and it is now beginning to be understood that the cause lies within the entrance to the bowel, that there is there a crack or ulcer, and unless we get at that cause we can paint all the preparations of the Pharmacopœia on the anal region without curing the disease. The author has gone through this experience; has tried—and he hopes intelligently—to carry out the directions in the books, but he has failed to cure the patient. And the reason is that the most sensitive area in the vulva is just at that part where it joins the vagina, in that ring of tissue, and if we examine carefully we will find cracks and fissures and tender spots right around that ring, and a degree of inflammation extending into the vaginal canal. That being so, no treatment is of any avail unless it is applied to the lower part of the vagina; this is the secret of the treatment of these cases.

The author has had many cases of pruritus under his care, and he has not

had a failure since he has been working on these lines. Undoubtedly the best material to use in the treatment of pruritus is carbolic acid. Carbolic acid will cure the pruritus; it is only a question of strength. It is a local anesthetic, and a strong antiseptic. Begin with a solution of 1 in 40; if that is not strong enough use 1 in 20, and if that is not strong enough use 1 in 10. A bad case of pruritus will never be cured if we allow the patient to go about. The usual treatment is to allow the patient to walk about, to put a little wool between the labia, and to give her a lotion or ointment for application to the part. That may alleviate her condition, but it certainly will not cure the condition. If we get a bad case we have to put the patient to bed; the relief obtained by the horizontal posture diminishes the local congestion, and she gets very much better. The way to apply the carbolic acid is to cut strips of lint and steep them in 1-in-20 carbolic solution. They should be about three inches in length. One inch of the strip is introduced into the vagina, and the remainder, which is spread into the form of a fan, is allowed to lie between the labia. If two or three such pieces are put into the vagina and left there over night, we will find the pruritus is quite stopped, and the patient will probably have had the first night of relief for some time. That is the important point: all applications, whether they be lotions or ointments, must be used so that, according to a common phrase, they "touch the spot." That spot is just inside and around the vulvar orifice and inside the vagina. Any who care to investigate this matter for themselves and examine cases of pruritus should pass a speculum, and they will be astonished to find that the congestion is perhaps halfway up the vagina. Now is it likely that treatment directed to the vulva alone will ever cure it? It may perhaps alleviate it, but the pruritus will recur. So we must get at the lower part of the vagina and treat that, with the tender spots and cracks around the vulvar orifice.

We should then apply a large pad of boracic wool. Boracic wool readily gives off the boracic acid, and a fine powder is left on the vulva. And if we put a large pad of boracic wool and fix it with a T-bandage, we have not only the action of a powder and the drying action of the wool, but it is a very effectual method of preventing the patient from scratching herself. After we have used the carbolic once or twice and got the local conditions improved, we will find the use of carbonate of bismuth ointment of great benefit. The author prefers to make this carbonate of bismuth ointment with lanolin. It is true that we may make rather a thick ointment, but we can diminish the thickness of it by adding glycerin. But that it should be fairly thick is most important, because it forms an effectual coating to the mucous membrane and the skin in that region. These are the important points with regard to the use of carbolic acid in this condition.

There are various other remedies which are used. Supposing we see a case which the carbolic acid has not cured, though it is very unlikely we will have such a one, the next best application, in the experience of the writer, is chloroform and olive oil (chloroform ℥j, ol. amygdalæ ℥j). This should be applied on a camel's-hair brush, or it can be applied on a piece of wool or lint, and in applying it we must also put some inside the vagina. A very useful ointment is unguentum conii (hemlock ointment) either alone or with 30 minims of purified creosote. This is a very good ointment for allaying the local irritation. But if we use the hemlock ointment we must get some of it into the vagina, otherwise we do not cure the disease. In addition to this it is very useful to advise hot sitz baths, simply because in many cases of this kind where there is a lot of discharge it aids cleanliness. These sitz baths ought to be tepid, and ought to contain bicarbonate of soda. Baths with bicarbonate of soda are useful in cases of general pruritus of the skin—half a pound of bicarbonate of soda to the usual sitz bath. For a sitz bath we diminish the quantity of soda in proportion to the amount of water employed. After a patient has had a sitz bath she should dry the vulva carefully, and then introduce the plugs of carbolic, and put on the boracic wool with a T-bandage. After removing the plugs and pad in the morning, she should use one of the ointments mentioned, such as hemlock ointment, with or without creosote, or the bicarbonate of bismuth. There are several

lotions recommended. One of the best to use is:

℞ Sodii biborat., ʒj;
Olei menth. pip., m. v;
Aquæ, q. s. ad Oj.

Another good lotion is liquor carbonis detergens. Sometimes this acts like a charm in these cases. These lotions are especially useful when we find the irritation has been alleviated by the carbolic, and we want a preparation which the patient can continue using to keep the pruritus from returning.

℞ Liquor carbonis detergens, m. x;
Plumbi subacetatis, m. x;
Aquæ, q. s. ad fʒj.

This lotion should be diluted with an equal quantity of warm water. If we prefer to give it in ointment, a very good combination is:

℞ Liquor carbonis detergens, fʒj;
Hydrarg. ammon. chlor., gr. x;
Lanolini, ʒj.

There is no doubt that lanolin is very much better than vaselin in cases of local irritation in the vulvar region. It is, however, more expensive. Ointments act much better than lotions, and this is one of the best.

ADDITIONAL FORMULÆ.

Lotions.

℞ Zinci oxidi, ʒj;
Calamini, ʒj;
Mucilaginis tragacanthæ, fʒj;
Aquæ calcis, fʒiv;
Aquæ, q. s. ad fʒj.

Strong infusion of tobacco with addition of Eau de Cologne to mask the odor.

Lotio nigra, a corrosive sublimate lotion, may be used, or dilute hydrocyanic acid (fʒj to fʒxv).

Ointments.

℞ Lanolin, ʒij;
Vaselin, ʒij;
Oxide of zinc, ʒij;
Starch, ʒij.

We may add ten grains of resorcin or fifteen grains of salicylic acid.

℞ Ung. zinci, ʒij;
Pulv. calamini, ʒij;
Pulv. amyli, ʒiv.

Or,

℞ Ung. plumbi iodidi, ʒj to the oz.
Acidi hydrocyanici dil., fʒj;
Unguent. bismuthi, ʒj.

Other local applications may be mentioned: silver nitrate, 10 to 20 per cent; solid menthol, compound tincture of benzoin; cocaine, 4 per cent solution. A weak continuous current is useful in the so-called neurotic cases.

For the general treatment of these cases rest and diet are important; and another most important precaution is to prevent the patients taking alcohol, because the pruritus is so depressing that as a rule when they take alcohol they imbibe too freely. One of the best drugs to give as a local sedative is bromide of sodium, 20-grain doses three times a day.

And lastly, a word or two with regard to surgical treatment. If we get a bad case which nothing, not even carbolic, can cure, there is always the possibility of affording relief by excising the whole ring of mucous membrane at this sensitive area, including the ring of the urethra, and in bringing mucous membrane and skin together. But another condition which is frequently associated with pruritus is gaping of the vulva, and in this condition fecal matter may pass into the vagina and considerable local irritation result. An operation undertaken to diminish the size of the vulva will also cure the pruritus.

A NOTE ON PUERPERAL CONVULSIONS.

DUKE makes this note in the *Medical Press* of September 27, 1905.

Having both seen and experienced in his own practice the value of venesection to the amount of 17 to 20 ounces, before the days of saline transfusion, the writer ventures to recommend that both venesection and transfusion of normal saline fluid be carried on simultaneously, more especially in hospital practice, where every facility can be obtained—the bleeding removing some of the poisoned blood, and the saline fluid diluting and supplying the proper volume to keep up cardiac action and also acting as a diuretic in addition. Time can almost always be found between the fits for carrying out his suggestion, and in exceptional cases, where fit follows fit in quick succession, morphine can be injected so as to obtain an interval in which to perform the double operation. The author is firmly convinced of the value of venesection in these sad cases when the pulse is full and bounding, and he has only seen two cases die, who had been bled when the convulsions continued after delivery (which the author believes is still the case after the saline transfusion). Pre-

vention being better than cure, it is obvious that if all pregnant women were kept more under observation for the last three months of pregnancy, and the bowels, skin, and kidneys assisted in carrying on their functions, we would hear and see less of puerperal eclampsia.

SCOPOLAMINE AS AN ANESTHETIC.

SHARP (*New York and Philadelphia Medical Journal*, Nov. 25, 1905) says that a few of the advantages of scopolamine anesthesia are: The harmlessness of scopolamine—while the pulse is accelerated the quality remains good and strong; the absence of the stage of exhaustion; the small amount of chloroform used; the natural sleep after the operation, extending over the period of postoperative pains; the absence of nausea and other ill effects which usually follow the use of chloroform alone; the deep, full, and regular respiration; the ability of the patient to take water or even food shortly after awakening without nausea or vomiting. This last the author believes to be of great importance. By being able to give liquids the thirst which follows operation is relieved, and at the same time a natural vehicle to carry away waste matter is furnished.

CANCER OF THE STOMACH AND ITS TREATMENT.

In the course of a lecture reported in the *Clinical Journal* of November 15, 1905, FAWCETT states that the situation of the disease renders treatment sufficiently difficult, and this difficulty is increased by that experienced in diagnosis in the early stages. Though this be true, yet we should not look upon treatment as hopeless, and certainly not as useless. The hopelessness of the treatment in some cases depends upon the fact that we do not recognize it early enough, the hopefulness of it that we may in the future learn to do so.

Surgical treatment in general is looked upon with approval by a large section of the public, as well as ourselves, nowadays —to such an extent, indeed, that an exploratory operation is regarded by some, whether patients or doctors, as of hardly more consequence than the taking or the ordering of a pill. There are circumstances under which an exploratory laparotomy is advisable, nay essential, to clear up a diagnosis, but such an operation should only be undertaken after thorough investigation of the case, both as regards the chemical and microscopical characters of the stomach contents, and in relation to other points mentioned. Such investigations, if properly carried out, need not cause any loss of time to the patient, whilst their neglect will only end in discredit to the profession and to surgical operation in particular, and in the subjection of some people, however pleased they themselves or their friends may be at the idea, to needless surgical interference.

In the surgical treatment of these cases, just as in cancer of the breast or elsewhere, lies for the present our best hope, and therefore it is all the more necessary to advise it without needless delay, it is true, but only after due consideration of all the facts obtainable in any particular case.

We should remember too that many patients with carcinoma of the stomach stand operation badly. Their general condition may previously appear satisfactory, and yet directly after, apparently as a result of, operation they, in some cases, rapidly become weaker and die.

Though operation has a depressing effect upon some patients, yet in others the reverse is produced, the beneficial effect upon their mental condition being most striking. A patient seen by the author on April 1 was little more than "skin and bone;" an exploratory operation was performed in March, 1905, when a diffuse carcinoma of the stomach was found present. Nothing could be done, and the wound was closed again. After the operation she showed considerable improvement, both mentally and bodily; and five weeks later she had not lost weight, the pain had diminished, the vomiting was lessened, and her appetite and digestion better than before the operation.

To produce this result, however, an operation is not necessary. Osler refers to the visit of an "optimistic consultant" to a patient with malignant disease of the stomach, and how, as the result of the doctor telling the patient that he was the subject of chronic gastric catarrh, a

remarkable improvement commenced, and continued for nearly three months, despite any particular change in the treatment, which had consisted of lavage and careful feeding.

Unfortunately, or perhaps fortunately, exploratory laparotomy does not always produce this beneficial effect, so that no reliance can be placed on a development in this direction by one who has recommended such an operation lightly or inadvisedly.

It is always advisable to make a careful blood examination before operation, because anemic patients stand operation badly.

The conditions under which an exploratory operation may be advised may be generally laid down as follows:

A middle-aged patient who, having previously been healthy, becomes the subject of progressive and intractable stomach disorder should be subjected to most careful examination.

If the facts obtained from the chemical and microscopical examination of the stomach contents, if the condition of general nutrition and the result of the examination of the blood are consonant with those usually met with in cancer of the stomach, then an exploratory operation should be advised, the patient having had explained to him the danger of further delay. As regards the operation to be performed, a partial gastrectomy with an independent gastrojejunostomy would appear to be the best where possible. Mayo states that one of the main reasons that only five to eight per cent of gastric cancer cases have been cured by extirpation lies in the fact that a part of the organ has been retained in which the vascular and lymphatic connections with the diseased area are close and direct. He recommends removal of the pyloric portion, and of the main lymphatic connections, but omitting what he calls the "dome." In the "dome" the lymph current is feeble, and in the opposite direction to that elsewhere. The incision is made along a line in the direction (shown in a diagram) from the region of the cardia to that of the greater curvature in the pyloric region.

Moynihan in a paper in the *Practitioner* for December, 1903, after analyzing a large number of cases (more than 700) recorded by Kronlein and Mikulicz, comes to the conclusion that gastrectomy is, where possible, a better operation than gastroenterostomy. It gives the patient some ten months longer to live, and, during that time, in greater comfort; there is also the possibility that the disease may be removed in some cases.

As regards gastroenterostomy, Moynihan points out that Kronlein and Mikulicz and others recommend that gastroenterostomy should only be performed where there is a stenosis at or near the pylorus, or where stasis of the stomach contents is certain. In such cases there is no doubt that although the duration of life may only be prolonged for some three or four months on the average, yet the well-being and comfort of such patients are materially increased.

PENETRATING GUNSHOT WOUND; NINETEEN INTESTINAL PERFORATIONS.

IDEN (*Medical Record,* Nov. 18, 1905) reports the case of a man who was shot in the abdomen by a 32-caliber revolver at 7.45 P.M. July 31. At 10.25 P.M. the patient was admitted to the hospital. A wound was found in the abdomen slightly above McBurney's point; the abdomen was distended with fluid, the pulse small and feeble, the face pale, the body bathed in cold perspiration, the temperature subnormal. Morphine sulphate ¼ grain and strychnine sulphate 1/30 grain were given. At 12.10 operation was begun by a median incision. The abdomen was found full of blood, though hemorrhage had apparently ceased. The blood was removed with gauze sponges. Beginning at the duodenum the small intestine was quickly examined, and nineteen perforations were found, besides a number of wounds in the mesentery. At one place there were five wounds in four inches of gut, necessitating resection, in which case end-to-end anastomosis was done by means of Cushing sutures. Other perforations were closed by purse-string sutures. The wound in the omentum was ligated with silk and the injured part removed. In the examination of the intestines it was impossible to avoid eventration, so the intestines were covered with gauze wet with hot salt solution. The abdominal wound was closed with three rows of

buried catgut sutures and a superficial row of silkworm-gut. No attempt was made to locate the bullet, which had evidently passed through the abdomen transversely and lodged in the back muscles of the opposite side.

The operation required two and one-half hours, and at the end the rate of the heart was 170 to 189; the pulse was almost imperceptible in the radial, facial, and temporal arteries. Respiration was shallow, and varying in rapidity. The extremities were cold and blue. During the operation four 1/30-grain doses of strychnine and three 1/150-grain doses of atropine were given. Before the patient was removed from the table one quart of hot saline solution was given intravenously. By 6 A.M. the pulse was 128. Nothing but cracked ice was given for forty-eight hours; ¼ grain of morphine was given every four hours, and strychnine as needed. For a few days the temperature ran about 100° and the pulse from 124 down to 92. There was some vomiting; the patient rested fairly well. The patient then improved rapidly; the wound healed by first intention. By September 5 the patient had gained flesh and strength and was permitted to walk around with an abdominal support. On September 20 he was sent to duty perfectly well.

RADICAL OPERATION FOR INGUINAL HERNIA IN CHILDREN.

PETERSON (*American Journal of Surgery*, November, 1905) says that he deals with cases five years old, a period during which most surgeons consider that the treatment should be mechanical and not operative. He has operated twenty-three times during the past year for the radical cure of inguinal hernia in young children. In three cases strangulation was present. Great care should be taken in approximating and suturing the internal oblique and transversalis muscles to Poupart's ligament at the lower part of the wound, as it is at this point that recurrence takes place. The Bassini method is the one to be preferred. After operation the patient is kept in bed ten or twelve days, and a bandage is worn three or four weeks. Children bear surgical work remarkably well, and there is no major operation attended with as little shock as that for hernia. The author believes the operation preferable to a truss, unless there is some contraindication to operation, because the operation is safe and brings about a cure in about two weeks, whereas to bring about a cure with a truss requires two or more years, and sometimes cure is not effected.

SURGERY OF THE STOMACH.

BEVAN (*American Medicine*, Sept. 30, 1905) says that much has been written of the technique of gastroenterostomy, and much careful study is being given it at present. The writer is impressed with the general proposition that the stomach pouch should be drained at its lowest point and that the opening should be of good size. Whether this is done by suture, by McGraw ligature, or by Murphy's button he thinks makes little difference, and whether it is anterior or posterior is also not of much moment.

The ideal operation is the Y-shaped gastroenterostomy of Roux. The objection to the Roux and similar operations done by Mayo, Crile, and others is that they take too long a time for their performance and they carry with them more danger. Taking all facts into consideration, for benign obstruction either a posterior gastroenterostomy with a short loop, done as recommended by Moynihan, with clamp and suture, or a very low anterior anastomosis with a 15- to 20-inch loop, done with clamps and suture, or with McGraw ligature, offers the operation of choice. These simple operations give extremely satisfactory results, both immediate and permanent—fully as good as the more complicated methods.

A few cases of vicious circle, and more or less persistent vomiting and distress, will occur, no matter what method is employed. He calls attention to the value of castor-oil treatment in cases of vomiting after gastroenterostomy. He has employed it in half-ounce to one-ounce doses, two or three times a day, for several weeks, in a number of these cases, with marked benefit and permanent relief from the symptoms, and he recommends its employment.

Gastroenterostomy for benign obstruction of the pylorus should not carry with it a greater mortality than five per cent, a mortality which is very small when com-

pared with the dangers of the continuance of the condition itself. The safety of the operation in benign disease is shown by Moynihan's remarkable series of 153 gastroenterostomies, done mostly with clamp and suture, with but two deaths.

Hour-glass stomach due to cicatricial contraction caused by ulcer is a condition not infrequently met. When the pylorus is free, a plastic gastroplasty uniting the two pouches in one will suffice, if pyloric obstruction exists, or in cases of great dilatation a gastroenterostomy may also be required. A diagnosis can sometimes be made before operation, but the cases are usually discovered only at the time of opening the abdominal cavity in an operation for supposed pyloric obstruction. Such complications as perigastric abscess, subphrenic abscess, and adhesions are to be treated along the well-known surgical lines of well-planned and efficient drainage, separation of the adhesions, and restoration of the structures to as near as possible the normal conditions.

The surgery of the stomach has advanced to a point where it can claim recognition side by side with the surgery of the bile tracts, the surgery of the kidneys, the surgery of the appendix, and the surgery of the female genitals, for it has been shown that much can be done by surgical procedures for lesions of the stomach which could not be done by any other means.

In cancer it is our present hope. In ulcer and its complications it can save lives and restore health and accomplish an enormous amount of good.

CARCINOMA OF THE INTESTINAL TRACT.

TUTTLE (*Medical Record*, Nov. 4, 1905) states that it is very important to eliminate the fecal current from the region involved in all cases where extirpation is impossible. If there is sufficient healthy intestine below the growth to admit of anastomosis with healthy intestine above the growth, this is preferable to inguinal colostomy, and is likely to result in greater prolongation of life. In inoperable exuberant carcinomatous growths low down in the rectum and filling up its caliber, the author has seen the most radical relief obtained by scraping away the growth with a curette and thoroughly cauterizing its base. In the small intestine and upper colon, whenever the growth is so mobile that it can be brought outside the abdominal wall, it is safer to fasten it in this position, close up the abdominal wound about it, and wait for two or three days before excising the growth. The operations thus far performed in this way, eleven in all, with one death, render this procedure very safe.

TREATMENT OF EXOPHTHALMIC GOITRE.

MCKENZIE (*Practitioner*, November, 1905) details various methods of treatment of exophthalmic goitre. Each case must be taken on its own merits, and the rigor of the treatment must vary with the character of the symptoms. Rest, mental and bodily, is of prime importance. Any kind of mental excitement aggravates the disease. Work should be stopped or but moderately indulged in. Plenty of sleep should be taken and hurry should be avoided. In more severe cases the patient should be kept in bed as long as the pulse-rate is 110 or more per minute. The diet should be full and nutritious.

Medical treatment is advisable through all the stages of the disease. The drug which is the mainstay is belladonna. It probably acts by quieting the nerves and by diminishing thyroid secretion. It should be given in doses sufficiently large to cause dryness of the throat. Heart tonics, as strophanthus or digitalis, should be given. Electrical stimulation of the vagus is sometimes beneficial. The good effect probably comes from slowing the heart. Serum treatment has been unsuccessful.

The operations most favored aim at reducing the quantity of thyroid secretion formed either by tying the principal arteries or by partial thyroidectomy. The most favorable cases for operation are those in which the enlargement has preceded the other symptoms. Operation is unsuitable when tachycardia and emaciation are extreme. The mortality shortly after operation may be high, due to the bad effect which general anesthesia has on these patients and the introduction of excessive quantities of thyroid secretion at the site of the operation. Partial thyroidectomy is preferable to ligation. Out of fifty-nine cases operated upon by

Kocher four died in the first ten days, forty-five were cured, and the remainder were improved.

TREATMENT OF PYLORIC OBSTRUCTION.

After discussing the causes and symptoms of pyloric obstruction POWER (*Practitioner,* November, 1905) says that proper diet, bismuth, and washing out of the dilated stomach are proper methods of treatment in slight obstruction. When simpler remedies and diet fail to bring about a cure there should be hesitation in recommending an exploratory incision with a view to the performance of a posterior gastrojejunostomy. The operation should not be postponed until the patient has exhausted himself, because early operation is attended by very little risk and has a twofold advantage. If the patient is found to be suffering from cancer of the stomach more radical measures can be pursued than if delay has resulted in infiltration of surrounding tissues. If, on the other hand, the patient is suffering from pyloric obstruction not due to cancer, the surgeon can promise speedy relief and prolongation of life for many years in comfort.

TREATMENT OF CHRONIC PROSTATIC ENLARGEMENT.

LEWIS (*Boston Medical and Surgical Journal,* Nov. 9, 1905) discusses briefly the various methods of treatment of chronic prostatic enlargement, and concludes as follows:

The use of sounds is generally to be condemned.

The sphere of usefulness of the catheter is growing smaller and smaller as the advantages of an early operation make themselves manifest.

The Bottini operation may be applicable in selected cases, but should seldom, if ever, be adopted.

Orchidectomy, vasectomy, ligation of the internal iliacs, injection of carbolic acid, application of electricity, and allied methods are to be condemned.

Prostatectomy is the procedure of choice, best performed when the symptoms first make themselves manifest and the patient's condition is presumably at its best.

The preferable route is through the perineum, the preferable method that of Young or one of its modifications, but much depends upon the skill of the operator as regards the method employed.

In patients with foul bladders and diseased kidneys who, we have reason to expect, would not stand an extensive operation, thorough drainage should be first instituted either by a suprapubic or perineal incision under local anesthesia, to be followed later by enucleation, if deemed advisable.

The use of local anesthesia, especially spinal cocainization, is of great value, and should be more extensively employed.

ARTERIAL ANGIOMA OF THE SCALP.

A very severe case was cured by KROGIUS (*Centralblatt für Chirurgie,* No. 39, 1905) by the use of subcutaneous sutures. A curved needle with the eye in the point was passed beneath the mass of vessels and brought out through the skin about an inch away, threaded with one end of a heavy silk suture, and withdrawn. It was then reinserted in the same spot, passed between the skin and the angioma, and brought out at the same opening as before, threaded with the other end of the suture, and withdrawn. A second suture was passed in the same way, the last hole of the first suture serving as the first opening of the second suture, this being continued around the entire proximal edge of the growth; all the ligatures were tied tightly. The angioma almost disappeared after the first operation, leaving only a small mass at its distal part, which was treated in the same manner with complete success.

THE RETROVERTED UTERUS.

This subject is discussed briefly by STONER (*American Medicine,* Nov. 10, 1905), who considers the Alexander operation ideal in those cases which are free from complications. When adhesions of the uterus or disease of the adnexa exist the abdomen should be opened. By suspension of the uterus to the abdominal wall the organ is left in an unnatural position, but the clinical results are exceptionally good. The Mann operation for shortening the round

ligaments deserves the highest credit. By this means the ligaments are made of treble strength and are less liable to subsequent elongation, but it does not wholly correct the pathologic condition. The author has applied the procedure of Mann to the uterosacral ligaments, doubling them upon themselves and whipping them together with silk or chromicized gut. The operation is very difficult or even impossible to perform when adhesions have destroyed the outlines of the ligaments. When adhesions are not present these ligaments are plainly brought into view by pulling the fundus of the uterus strongly forward.

THE QUICK CURATIVE TREATMENT OF GONORRHEA.

LYONS (*Medical Record,* Nov. 4, 1905) reports that by his method for rapid cure of gonorrhea, described ten years ago, out of a total of over 400 cases, 384, or about 95 per cent, have been cured within six days, and about 80 per cent in twenty-four hours. By a cure in twenty-four hours the author means that at the end of that time and thereafter no gonococci were found in the secretion, though it takes from five to ten days for the urethra to be restored to normal. When a patient presents himself complaining of urethral difficulty, a smear is made from the discharge, or if there is none, a platinum loop is introduced into the urethra and a smear made from this. If there be present a fair proportion of epithelial cells upon which colonies of gonococci are found, and the history of the case shows it to be one of recent infection, it is considered a good case for the quick curative treatment. The patient is required to urinate, which constitutes sufficient cleansing for the canal. Then with an ordinary conical soft-rubber pointed clap syringe one and a half drachms of four-per-cent solution of silver nitrate is injected into the urethra while the patient is in the recumbent position. Then the meatus is seized and the fluid held in for two or three minutes. The patient complains of but little or no pain at the time, and at most a little smarting on urination for the next twenty-four hours, at the end of which time he is to present himself again for further treatment. In the meantime no treatment is carried out, but the usual hygienic rules are to be followed.

On the second visit it will be found that the character of the discharge has changed to a thin, serous fluid. An examination is made for gonococci, several slides being prepared, and if none are found, nothing more is done. The examination is repeated for several days to make sure that no gonococci are present. If the germs have not disappeared, the injection is repeated with a drachm and a half of two-per-cent solution, and in twenty-four hours a reëxamination is made. The second injection causes more pain than the first and the secretion may be tinged with blood, but the author has not yet found a patient who refused a third injection with a one-per-cent solution. If, after the third injection, the gonococci have not disappeared, it is useless to proceed further in this way, and the symptomatic plan is adopted.

CYSTIC FORMATION IN DISEASED APPENDICES.

A possible danger from leaving behind part of the appendix is shown by three cases of KLEMM (*Münchener medicinische Wochenschrift,* No. 41, 1905). In each case the appendix was lost in a ruptured abscess and was removed in part or not at all. The proximal part being occluded or destroyed and the distal part retaining its power to secrete mucus, a cyst formed containing mucopurulent secretion, and required a second operation for its removal.

FRACTURED HIP—AMBULATORY DRESSING.

The dressing described by EWALD (*Wiener klinische Rundschau,* No. 40) is based on the fact that shortening after fracture of the neck of the femur is due to angular deformity and not to longitudinal displacement. After fracture the head and neck are abducted to a position at right angles to the axis of the body, further displacement being hindered by the ligamentum teres. If the legs are kept in the natural position during union the neck heals in a position of extreme abduction, and further motion outward is impossible. If the limb is kept in a position of abduction union should occur in the normal position, but to prevent the

pelvis following the leg the sound limb must also be kept in a position of abduction; this is best done by weight extension. In young and thin patients ambulatory dressing may be applied by taking advantage of the fact when the pelvis is tilted and the lower limb is in a position of abduction. A plaster cast is applied from the middle of the injured thigh to the crest of the ilium with the pelvis strongly tilted down on the injured side. A high heel on the other leg, which should seem about an inch longer, and a dressing to prevent bending the sound knee, complete the dressing, which must be worn six weeks, and the high sole three months.

UNUNITED FRACTURES—THYROID TREATMENT.

Thyroid extract causes union of fracture in rachitic subjects only, according to COURTIN (*Annales de Chirurgie et d'Orthopedie,* No. 9, 1905), who administered the thyroid extract to many cases, mostly among children. Most of the cases in children are due to rachitis, so this treatment is usually effective in this class of patients.

UTERINE PROLAPSE—NEW OPERATION.

In a correct operation, according to LAUDAU (*Centralblatt für Gynäkologie,* No. 43, 1905), the perineum must be strengthened and relieved of the weight of the uterus, and the stretched-out peritoneum in Douglas's sac must be shortened. Part of the uterus should be kept to supply firm muscular support for the middle of the perineum.

The proposed operation is as follows: (1) After disinfection draw the uterus and vagina as far out as possible by hooks placed in the portio. (2) Longitudinal incision through the anterior vaginal wall from urethra to cervix. (3) Separation of adhesions after incision around the anterior half of the cervix and pushing forward of the bladder. (4) Open the plica vesico-uterina and draw the fundus uteri forward until the posterior Douglas sac is accessible. (5) Place two silkworm sutures through the latter and the uterine muscle and draw them to the upper end of the vaginal incision, including the vesical peritoneum. This closes and shortens the peritoneum. (6) Ligate the adnexa where convenient. (7) Remove the free part of the uterus and tie all bleeding points. (8) Plastic operation covering uterus with anterior vaginal flaps. (9) High colpoperineorrhaphy with drawing together of levatores ani.

DILATATION AND CURETTEMENT FOR DYSMENORRHEA—A REPORT OF NINETY-FIVE CASES.

HOLDEN (*American Medicine,* Nov. 4, 1905) of the 200 cases of dilatation and curettement for dysmenorrhea done at the Johns Hopkins Hospital has been able to get the post-operation history in the 95 cases with which he deals in his report. Of these treatment was successful in 40 per cent. From his 95 cases the author draws the following conclusions:

1. Dysmenorrhea may be primary or secondary. In primary dysmenorrhea the pelvic organs are either normal or else merely poorly developed. In secondary dysmenorrhea marked pathologic changes are present in the pelvic organs, and these pathologic changes are the cause of the dysmenorrhea. The most frequent pathologic conditions causing dysmenorrhea are: (1) Pelvic inflammatory disease; (2) retrodisplacement of the uterus; (3) myomas, especially the submucous variety.

2. Primary dysmenorrhea often dates from debilitating illnesses, and is often apparently caused by anemia, malnutrition, and neurasthenia.

3. In 40 per cent of all cases of dysmenorrhea in which the pelvic organs are normal, or else merely poorly developed, successful results may be expected from dilatation of the cervix and curettement of the endometrium. By "successful results" is meant entire or very great relief from dysmenorrhea for a year or more, with or without subsequent return of the trouble. No relief whatsoever may be expected in 30 per cent of the cases. The relief in the remaining 30 per cent varies in degree and duration.

4. The presence of anemia, malnutrition, or neurasthenia does not necessarily cause a bad prognosis after dilatation and curettement, but in order to obtain a successful result from the operation these conditions must be rectified. If the pa-

tient's general condition is not improved little relief will be given by the operation.

5. The prognosis is better in those cases in which the pains (1) begin the day of flow or the day before, (2) are sharp in character, and (3) last but a day or two. The prognosis is worse when the pains (1) begin several days before the flow appears, (2) are dull in character, and (3) last for several days or throughout the flow.

6. Every operation should be preceded by a careful examination under ether. If the organs are not normal the prognosis is worse. When the history points to inflammatory trouble, even though none can be recognized at the ether examination, its possible existence should be carefully considered. If in such cases an exploratory laparotomy is not thought advisable, it is best to limit operative procedures to dilatation of the cervix and omit curettement.

7. In dysmenorrhea recurring after a period of relief following dilatation and curettement, the possibility of the new appearance of a pathologic condition in the pelvis—*e.g.*, a retrodisplacement—should be carefully considered.

8. When the pelvic organs are poorly developed, the prognosis for relief after dilatation and curettement is much worse than when the organs are normally developed. Apparently maldevelopment of the pelvic organs causes dysmenorrhea.

9. Chronic endometritis is rarely present in cases of dysmenorrhea unless there is at the same time an inflammatory condition of tubes or ovaries. Chronic endometritis alone is rarely a cause of dysmenorrhea.

10. Sterility is relieved by dilatation and curettement in but 15 per cent of the cases of sterile married women who are in the child-bearing period. The relief of dysmenorrhea does not necessarily mean the relief of the sterility, and *vice versa*, sterility may apparently be relieved without relief of the dysmenorrhea.

The relationship between dysmenorrhea and sterility seems an accidental one, and of no significance.

11. While dilatation and curettement in the majority of cases is perfectly safe, still when the technique of the operator is imperfect, either on account of unfavorable surroundings or lack of proper skill, it may be exceedingly dangerous.

BIER'S PASSIVE CONGESTION IN GYNECOLOGY.

Vaginal specula for causing local congestion by hot air and by suction are described by RUDOLPH (*Centralblatt für Gynäkologie,* No. 39, 1905). He has used them with good results in inflammatory conditions of the cervix, uterus, and pelvis generally. An ordinary cylindrical speculum may be used, fitted with a cork through which passes a glass tube connected with a hand exhaust pump. No cases are reported, but the apparatus is illustrated.

SPINAL ANESTHESIA WITH RAISED PELVIS.

Stovaine and adrenalin anesthesia is highly praised by FREUND (*Centralblatt für Gynäkolgie,* No. 39, 1905) in a preliminary report. He found that .06 gramme sufficed to produce loss of sensation lasting ninety minutes, and extending to just below the nipple. The injections were given in the second lumbar space with the patient lying on the side, and the needle entered just alongside the spinous process and passed diagonally upward to the center of the canal. The pelvis was immediately raised, and anesthesia came on in less than five minutes. Extensive abdominal operations were performed, such as hysterectomy for carcinoma, uterine and ovarian, myoma, and pyosalpinx. The results were good in each case, and only one showed a tendency to heart weakness.

SOLUBLE PREPARATIONS OF MERCURY IN THE TREATMENT OF SYPHILIS.

KLOTZ (*Journal of Cutaneous Diseases,* November, 1905) makes a plea for the use of the soluble preparations of mercury by the mouth in the treatment of syphilis. The method he uses consists in giving the bichloride of mercury in watery solution in doses of 1/8 to 1/5 of a grain. No syrup or aromatic is prescribed, because decomposition is least likely to take place if it is made up with plain distilled water. Instructions are given the patient to take the dose well diluted with water or milk after meals. The patient can very conveniently carry about with him a flat three-ounce bottle which,

allowing for waste, will hold twenty-one doses—enough for a week's treatment. A diluent is usually accessible, and is no more difficult to obtain than the fluid necessary to wash down a pill. The dosage can easily be gauged if a half-ounce bottle three-fourths full will be carried for the day's use.

The bichloride solution is less apt to derange the digestion or produce salivation, its antiseptic influence warding off these accidents. Its effect upon the symptoms and apparently on the disease itself is remarkable and far superior to that of the pills.

SCROFULODERM AND FURUNCULOSIS —TREATMENT BY CARBOLIC ACID.

Pure carbolic liquefied by alcohol is used by VORNER (*Münchener medicinische Wochenschrift,* No. 42, 1905) in the treatment of these conditions. He paints it on with a fine brush or inserts a moistened probe into the furuncles, repeating it every two days or less often. Healing is usually prompt and without scarring. Large furuncles may be treated every day.

SUTURE AFTER RESECTION OF THE LIVER.

Plates of metallic magnesium are used by PAYR and MARTINA (*Archiv für klinische Chirurgie,* Band lxvii, Heft 4, 1905) for suturing all viscera which bleed profusely. Magnesium plates a few millimeteres thick and perforated in several places are provided, and one of these is placed on each side of the wound and sutures passed through the holes and drawn fairly tight. The various methods of arranging the plates and sutures cannot be described without the illustrations. It is best when possible to excise the tissue after passing the sutures, but if the tissue to be removed is wedge-shaped the sutures must pass through the cut surface, and therefore cannot be applied until later. The sutures are tightened until only a few arteries bleed still, and these are tied separately. If the plates are drawn too tight there is danger of necrosis, and pieces of tissue escaping into the circulation may cause pneumonia. The magnesium decomposes the blood with the immediate formation of fibrin, and is oxidized by the water into M_9O_2 with evolution of hydrogen gas, which is rapidly absorbed and does no harm. A very dull needle should be used, and catgut sutures of about the same diameter, to avoid bleeding from the puncture. Experiments showed the entire trustworthiness of the method for sutures of the liver and spleen.

AUTOLYSIS IN SURGICAL THERAPEUTICS.

That intracellular ferments are of great importance is shown by HEILE (*Archiv für klinische Chirurgie,* Bd. lxxvii, Heft 4, 1905), who has shown that a ferment is set free by the destruction of leucocytes in pus as well as by the action of *x*-rays on splenic pulp, which is able to dissolve fibrin flakes. The action is universal and is not due to one substance, *e.g.,* lecithin, as has been claimed. The ferments if present in large amount are destructive to living cells, and therefore necrosis may follow the exposure to the *x*-rays of parts containing many leucocytes—*e.g.,* abscesses or even acutely inflamed parts. The ferments are also bactericidal, and rabbits injected intraperitoneally with aleuronat to produce leucocytosis, and later injected with pus cocci or colon bacilli, recover from larger doses if they are exposed to the *x*-ray, which destroys the leucocytes and sets free the ferments. It is probable that Bier's hyperemia and some forms of counter-irritation act in the same way, as increase of purin excretion, indicating increased destruction of leucocytes, follows their use.

TECHNIQUE AND ACTION OF SPINAL ANESTHESIA.

Stovaine with suprarenal extract is preferred by DONITZ (*Archiv für klinische Chirurgie,* Band lxvii, Heft 4, 1905), who reports 407 cases of spinal anesthesia, 102 being with stovaine. In 80 of these there was no disagreeable sensation; in the others faintness, nausea, and very rarely vomiting, resulted. These results were mostly in early cases, as with some experience it is possible to use very small quantities of anesthetic and to limit the effect to a given part of the cord, even the dorsal part.

The failures were either an anesthesia

limited to one-half of the body or an imperfect or, rarely, totally absent anesthesia. In the middle line of the cauda there is a large lymph space into which the conus medullaris extends, and the needle should enter this space. If the needle is alongside, among the nerve bundles, the fluid will now flow freely, and the anesthetic injected will travel along the bundles rather than across them, producing local or unilateral anesthesia. If the spinal fluid only drops from the cannula, this should be reinserted until it enters the central space. If the needle is in the middle line and not too low, unsatisfactory results are very rare. It is best to inject the anesthetic with the patient sitting upright, and then to place the patient on the back and raise the buttocks, thus causing the anesthetic to bathe the posterior or sensory roots. The location of anesthesia may be controlled by use of a bandage around the neck, which causes congestion of the brain and increased intracranial pressure. The removal of such a bandage causes a strong flow of spinal fluid toward the head, thus permitting anesthetization of the thorax, and putting on a bandage after giving the injection prevents the upward flow and limits the anesthetic action to the perineum and legs. The former effect may be increased by drawing off a large amount of spinal fluid, and thus reducing intraspinal pressure, before giving the injection, and in this way anesthesia of the thorax and abdomen may be produced without affecting the legs and perineum.

The after-effects of spinal anesthesia are due to irritation from the quantity and quality of the solvent or to the anesthetic itself. The higher the injection is given the less fluid is needed, and above the second lumbar vertebra is the place of choice. The fluid injected should be isotonic with the spinal liquid, and this may be obtained either by dissolving the solid anesthetic in spinal fluid first withdrawn or by preparing an isotonic solution. Stovaine is the least irritating anesthetic thus far proposed, and 0.2 gramme is enough for ordinary cases, 0.4 gramme for very extensive operations; 0.7 gramme may cause disagreeable sensations. The anesthesia does not last as long as that of cocaine, but may be prolonged by the addition of suprarenal extract.

The reputation of lumbar anesthesia as an uncertain method is not due to refractoriness of individuals toward it, but to faults in technique and to insufficient knowledge of anatomical and physical conditions.

FRACTURE OF THE BASE OF THE METACARPALS.

This is a fairly common accident, according to DUROUX (*Lyon Médical,* No. 42, 1905), but although recognized by Benett in 1881 has been disregarded, until recently the *x*-rays have again shown it to be frequent.

Fractures of the second, third, and fifth metacarpals generally involve only the process on the base to which the tendon is attached. They are due to muscular action associated with trauma or not, and if there is any bony displacement it is due to the fragment being drawn up on the carpus, in the second on the palmar, in the others on the dorsal surface. These fractures are most apt to occur when the hand is flexed, and in the case of the fifth a blow on the ulnar side of the wrist is ordinarily required. The symptoms are those of a bad sprain, pain increased by motion, and especially by traction or pressure on the affected bone, associated with crepitus or the presence of a bony mass above the metacarpal base, this being in the palm when the second is involved, and otherwise on the dorsum. If the fracture is recent there may be edema or effusion of blood. The dorsal branch of the cutaneous branch of the ulnar nerve is usually pinched in fractures of the base of the fifth metacarpal, giving rise to neuralgic and shooting pains.

Fractures of the fourth metacarpal are due to direct trauma or to a blow on the end of the bone, which however usually causes a fracture of the shaft. The break is transverse and often associated with other injuries. The symptoms are pain and crepitus, but little or no deformity.

Fractures of the base of the first metacarpal are oblique from the palmar aspect backward and upward, the basal fragment possessing most of the articular surface, especially if the thumb is flexed at the time of injury. It is due to blows on the end of the thumb or on the end of the first phalanx when the second is flexed, or to hyperextension or flexion of the metacarpus. The symptoms are those

of sprain with extreme limitation of abduction and adduction, and a bony prominence in the snuff-box.

The diagnosis of any of these fractures is ordinarily impossible without the radioscope. The treatment must be directed first to the arthritis of the carpo-metacarpal joint which is usually present, and when this is relieved complete immobilization with a plaster-of-Paris bandage should be instituted and retained for a week, or in the case of fractures of the first metacarpal for three weeks.

The prognosis must be guarded. Reduction is often incomplete and retained with extreme difficulty. Union of the first metacarpal may leave permanent limitation of adduction and abduction, that of the fourth and fifth neuralgic pains, and that of the second and third some pain and limitation of the motions of the wrist. Ankylosis of any of the joints may rarely occur.

LACTIC ACID IN GONORRHEA OF THE CERVIX UTERI.

CHANDLER (*Journal of the American Medical Association,* Oct. 7, 1905) has injected various drugs, as silver and its preparations, pyroligneous acid, iodine, creosote, carbolic acid, and lactic acid. Of these he finds lactic acid to be superior to any of the others. He has used it in thirty-four cases, in every one of which gonococci were present before treatment. In every case a cure was effected in from one to three treatments. The method is as follows:

First cleansing the vagina and cervix thoroughly with warm water and cotton soaked in aqueous solution (4 to 6 ounces) of pyroligneous acid. Exposure of the cervix by drawing it downward and into view by an ordinary long tenaculum. Injection by means of an ordinary hypodermic syringe of a few drops of pure lactic acid just beneath the membrane. Continuance of this until the whole of the cervix is exposed as the superior and inferior lips are injected. This may be done in one sitting, or in a nervous case, if desired, in two or three sittings.

The author's conclusions are as follows:

Lactic acid injection does cure cervical gonorrheal infection.

Lactic acid injection has no ill after-effects.

Lactic acid injection stops the spreading to the endometrium of the body of the uterus in acute cases if treatment is started soon enough.

Ordinary douches and painting of cervix can give only temporary relief.

It is better to destroy the cervical glands, and this should be done as soon as diagnosis is positive.

An examination should be made, not only of the discharge, but if necessary (where that examination is negative) of the cervical membrane with its glands.

Most of the chronic discharges are due to retained gonococci.

It is possible to cure this discharge by injection by this method into the cervical glands.

Cervical infection is always possible in gonorrhea in the female, and by prompt action tubes, etc., may be spared future disease.

A too deep injection may cause a slough, which, while not dangerous, is to say the least annoying, and lessens the good result which should be obtained from said injection.

Reviews.

ESSENTIALS OF MATERIA MEDICA AND THERAPEUTICS. Arranged in the Form of Questions and Answers. By Henry Morris, M.D. Seventh Edition, Thoroughly Revised, by W. A. Bastedo, Ph.G., M.D. W. B. Saunders & Company, Philadelphia, 1905. Price $1.00.

The first edition of this quiz-book apstated, it has reached its seventh edition, peared in August, 1899, and, as already the present edition being published in order that the text might be brought up to the standard set by the new United States Pharmacopœia, which went into effect on September 1 last. The book is designed not as a text-book but as a means by which the student can quiz himself, or his fellows, upon this branch of medical study. After preliminary pages devoted to definitions, weights and measures, prescription writing, influences which modify the effects of drugs, the administration of medicines and classification of medicines, the various drugs are taken up in the classification followed in Wood's Therapeutics, although this classification is considerably modified from that fol-

lowed in the last edition of Dr. Wood's book. The text is in the form of questions and answers, and care has been taken to bring the official preparations in consonance with the new official standards. In several instances we think that the same care has not been taken in bringing up the text to the conceptions of physiological action and therapeutic application which exist to-day.

MODERN MATERIA MEDICA AND THERAPEUTICS. By A. A. Stevens, A.M., M.D. Fourth Edition, Thoroughly Revised. W. B. Saunders & Company, Philadelphia, 1905. Price $3.50.

The first edition of this book appeared just eleven years ago, and the four editions which have been called for indicate that many of the profession have found it useful. The object in publishing the present edition is to bring it in accord with the new revision of the Pharmacopœia. The author tells us in his preface that such corrections and additions have been made as seem necessary to make it a more complete guide to the study of materia medica and therapeutics, and a number of new drugs are discussed in its pages for the first time. The author has seen fit to employ at the head of his articles some of the new official names for such of the drugs as urotropin, methylene blue, trional, and sulphonal. As these chemical names are unduly long, it will be some time before the profession will become accustomed to them, or employ them. Nevertheless, it is proper for the author to follow the Pharmacopœia in this respect. The book is large enough to be used as a text-book, but is not as complete as some of the works on materia medica and therapeutics which are equally well known. It is, however, a very safe guide for practice, and we have no doubt that many students will find the brief summaries of physiological action which are included in its pages of very considerable aid in the study of this, to many students, difficult part of the subject. As some of our readers may know, the first part of the book is devoted to a discussion of drugs according to the classification to some extent followed by H. C. Wood, and the last part of the book is devoted to the consideration of the treatment of a number of diseases which are commonly met with. This part on applied therapeutics covers 135 pages, whereas that part devoted to drugs covers 500 pages.

SURGICAL DIAGNOSIS. A Manual for Students and Practitioners. By Albert A. Berg, M.D. Illustrated. Lea Brothers & Co., New York and Philadelphia, 1905.

After a preliminary consideration covering the taking of the clinical history, the examination of the patient, and a brief summarizing of the clinical significance of the general symptoms of surgical disease, the subject of surgical infections is taken up, including under this heading the local lesions resulting from wound infections. Thereafter injuries and diseases of the head and neck are considered, under which heading will be found the localization of cerebral lesions, inflammations and neoplasms of the brain and its membranes, surgical affections of the face, mouth, tongue, tonsils, pharynx, and salivary glands, tumors and inflammatory diseases of the neck, diseases of the larynx, including foreign bodies. Then follow sections on injuries and diseases of the thorax, diseases of the esophagus, injuries and diseases of the abdominal wall, and visceral diseases of the female pelvic organs, of the rectum, of the genito-urinary organs, and finally injuries and diseases of the extremities, including the bones and joints. This book has been written for the student and practitioner, and therefore makes no pretense of an exhaustive study of diagnosis. It does, however, present admirably and concisely the salient diagnostic features of the classes of abnormal conditions discussed, and since diagnosis is the key to therapeutics, will prove a most serviceable addition to the physician's working library. Moreover, it emphasizes a point of cardinal importance in that there is throughout the work a pronounced insistence upon the recognition of those early symptoms which enable the surgeon to deal with various affections before that stage of the progression has been reached which while making diagnosis easy renders mechanical treatment futile.

OPERATIVE SURGERY. For Students and Practitioners. By John J. McGrath, M.D. Second Edition, Revised. Illustrated. F. A. Davis Co., Philadelphia, 1906.

McGrath's Operative Surgery is characterized by a brief but sufficient discussion of the surgical anatomy of each region or organ, the operations upon which are subsequently described in the text. Perhaps the most striking feature

of his work is incident to the fact that he has covered such a large field in a book of 600 odd pages. Many of the illustrations are admirable, and all are elucidating to his text. In the section dealing with operations upon the stomach and small intestines the more modern methods are particularly well described, though in these operations, as in others, there is at times a failure to note apparently minor matters, attention to which is so habitually given by the practiced surgeon that he fails to recognize their importance to those who have not had his experience. For instance, in the operation of gastrojejunostomy it is generally conceded that the best method of preventing a vicious circle lies in the employment of a loop of jejunum which leaves a short proximal end. In the chapter devoted to operations on the liver and gall-ducts there is a very pronounced lack of detailed description.

Operations upon the rectum have scarcely been modernized. The modern operation for varicocele has for one of its ends the sparing of the spermatic artery and not its ligation, and as a rule should be supplemented by wide excision of the skin. The injection method is rarely used for the cure of hydrocele. The section on surgery of the urinary system is distinctly inadequate.

Correspondence.

LONDON LETTER.

By George F. Still, M.D., F.R.C.P.

The topic of the day in the scientific world, at any rate in that portion of it which resides in this country, is the "opsonic index," its practical value in diagnosis, and as a guide to treatment. Put in a nutshell the facts are these: The resistance of a patient to certain bacterial diseases such as tuberculosis depends upon the power of the leucocytes to ingest the bacteria. Certain substances called opsonins exist in the blood serum which render the bacteria more easy of ingestion by the leucocytes; the amount of the opsonin varies in different people, and in the same person from time to time; by simple methods it is possible to estimate the number of bacteria ingested by each leucocyte, and this number divided by the number ascertained by a similar observation to be taken up by the leucocytes in the serum from a healthy person —*i.e.*, the standard of comparison—is called the "opsonic index." If the number ingested is the same in both cases the opsonic index is 1, and is normal; where it falls below the normal the resistance to the particular bacteria used is lower than normal.

At the Ophthalmological Society this month an interesting paper was read by Dr. Nias and Mr. Paton showing that in cases of phlyctenular conjunctivitis the opsonic index for tubercle is lower than normal, whereas the index for staphylococcus is normal. This agrees with the well-known clinical fact that tubercular children are specially liable to phlyctenules. They found also that as the opsonic index rose the phlyctenules disappeared. In London within the past few months many cases of tubercle have been treated by Dr. A. E. Wright and others with injections of tuberculin, which is found to raise the opsonic index, so that the patient acquires sufficient resistance to overcome the disease in some cases. The time is not yet ripe for any final conclusion as to its value, but there is to be a special discussion on the subject at the Medico-chirurgical Society, when some of the chief pioneers of this treatment will describe their experience, and no doubt will make it possible to form some judgment as to its value.

The Bradshaw Lecture was recently delivered at the Royal College of Physicians by Dr. G. R. Murray, of Newcastle, who is well known as an authority on diseases of the thyroid gland, and took for his subject exophthalmic goitre. I can only sum up here the main points of his lecture. Enlargement of the thyroid gland was absent in less than two per cent of his cases, but in many the enlargement was slight; rapidity of the pulse is always present. Exophthalmos was absent in 47 out of 170 cases; usually it comes on slowly, but sometimes develops in a few days. One case was quoted in which palpitation began in a healthy girl one night, and within a few days the other symptoms of the disease had appeared. The frequency of nervous symptoms was discussed; in many there is only a subdued excitement or restlessness, in some hallucinations without other evi-

dence of insanity. Dr. Murray had only known three out of 180 cases to become insane, but he quoted Clouston's opinion that insanity occurs sooner or later in a much larger number of cases than is generally supposed. Tremor of the hands is one of the most constant symptoms of exophthalmic goitre: it was present in 163 out of 170 cases. Skin changes are not uncommon, especially profuse perspiration, or some pigmentation, as if the patient were sunburnt; leucoderma, localized edema, and more or less baldness are also observed. Amenorrhea is a common symptom, but pregnancy may occur during exophthalmic goitre, and Dr. Murray emphasized the important fact that the disease may be greatly improved by pregnancy, which should therefore be allowed to proceed to full term.

On the treatment of exophthalmic goitre Dr. Murray made some most interesting remarks. It is only in very severe cases or during exacerbations that complete rest in bed is necessary; in a moderate case two or three weeks in bed at the beginning of a course of treatment may be desirable. Strict isolation is unnecessary. A long night's rest, say twelve hours, should be insisted upon in every case, and a combination of a restful life with open-air treatment, as for tuberculosis, gives excellent results. One of the most valuable measures is the application of the faradic current for an hour twice a day, one electrode being applied over the thyroid gland, the other at the back of the neck. The current should be strong enough to produce a slight pricking sensation in the skin, but not to an unpleasant degree. Dr. Murray said he had seen practical recovery in cases where the patient had persevered with this treatment. From the use of *x*-rays he has not seen any good, but some success has been recorded by continental observers.

Amongst the many drugs which have been recommended for exophthalmic goitre, but few in the experience of the lecturer were of value. Liquor arsenicalis in doses of 4 or 5 minims three times a day, but omitted for one week in every month, seemed to do good, and in cases in which the pulse was very rapid the addition of tincture of convallaria (10 to 15 minims) gave good results; and a further addition of potassium bromide was advisable if there were marked nervous symptoms. Two drugs were mentioned as not merely useless but harmful, namely, potassium iodide and thyroid extract, both of which seemed to aggravate the symptoms. Amongst other drugs sometimes of value were suprarenal and thymus given in tablet form, and the ointment, unguent. hydrarg. iodidi rubri, diluted to half strength and applied daily over the goitre. In some cases in which the palpitation was very severe the application of an ice-bag over the precordium gave relief.

The serum treatment of exophthalmic goitre was considered; it is supposed that the excess of thyroid secretion may be neutralized by the products of metabolism which accumulate in the blood where thyroid secretion is defective, as in myxedema, or in animals in which the thyroid has been removed. The serum from such animals has been injected by various observers in Germany in cases of Graves's disease, and excellent results have been obtained; but sometimes certainly the improvement is only temporary. A serum thus obtained has been called antithyroidin. A further step was the suggestion that milk from a thyroidless animal would be as valuable as the serum, and a dried milk from goats whose thyroids have been removed can now be obtained under the name of "rodagen." Either this or the fresh milk from the thyroidless goat has given success in the hands of some observers. Dr. Murray, however, had seen remarkable symptoms of collapse apparently produced by rodagen given in too large doses, and advises that it should not be given in doses larger than half a drachm. He has himself prepared a serum from the rabbit and goat fed on sheep's thyroid extract, and then bled so as to yield sufficient serum for the purpose. With this some improvement was obtained, but not sufficient to make it certain that the serum had any specific effect, and he concludes that so far no animal product has been proved to be of more value than the other methods of treatment already described.

At the Obstetrical Society a paper was read by Dr. Longridge showing that in puerperal eclampsia there was at any rate in one case diminution of the normal alkalinity of the blood. This suggested a line of treatment either to give citrates which increase this alkalinity, or, as Dr. Eden proposed, to use an alkaline fluid for transfusion.